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January 5, 2017

Ms. Khristie Vázquez
Project Manager
United States Environmental Protection Agency
City View Plaza II Building, 7th Floor, Suite 7000
#48 Rd. 165 Km. 1.2
Guaynabo, Puerto Rico 00968-8069

**RE: SOIL BORING INVESTIGATIONS & SVE WELL INSTALLATION REPORT
SVE CORRECTIVE MEASURES STUDY (CMS),
FORMER PFIZER PHARMACEUTICALS LLC,
ARECIBO, PUERTO RICO**

Dear Ms. Vázquez:

Please find attached a report prepared by CH2M on the soil boring investigation and soil vapor extraction (SVE) well installations that were conducted in accordance with the May 8, 2016 Work Plan approved by EPA.

As noted in the Conclusions and Recommendations section of the report, the two newly installed SVE-wells were connected to the existing SVE system and are currently being tested to evaluate system optimization. Nevertheless, future operations (i.e. operating cycle of wells) may be modified based on field performance data, which will be documented in semi-annual progress reports.

Please don't hesitate to call me if you have any questions regarding the attached report.

Sincerely,

A handwritten signature in blue ink that reads "William G. Gierke".

William G. Gierke, P.G.
Pfizer Pharmaceuticals LLC - a subsidiary of Pfizer Inc.

Cc: Adalberto Bosque, US-EPA
Diana Cutt, US-EPA
Rachel Griffiths, US-EPA

Pfizer Arecibo Soil Boring Investigation and Vapor Extraction and Monitoring Well Installation Arecibo, Puerto Rico

PREPARED FOR: Bill Gierke/ Pfizer, Inc.
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DATE: January 4, 2016

Introduction

From August 22 through October 25, 2016 CH2M HILL (CH2M) conducted a soil boring investigation at four (4) locations and installed two (2) soil vapor extraction (SVE) wells and a vapor monitoring well (VMW) at the formerly named Pharmacia and Upjohn Caribe, Inc. (P&UCI) site currently known as Pfizer Pharmaceutical LLC – Arecibo Site (Pfizer Arecibo). Work was conducted in conformance with the *Final Corrective Measures Study* (CMS) (ERTEC 2005) and the soil investigation work plan letter submitted to U.S. Environmental Protection Agency (EPA) by Pfizer on May 8, 2016 (Pfizer 2016).

The purpose of the soil boring investigation was to monitor the progress of the current SVE system toward meeting the target cleanup levels for site constituents of concern (COCs) and help determine if SVE system modifications may be warranted. Site COCs are acetone, carbon tetrachloride, chloroform, and methylene chloride. CH2M completed four soil borings near the existing SVE system and collected soil samples for analysis of volatile organic compounds (VOCs).

Based on the results of the soil boring investigation, two additional SVE wells (SVE-2 and SVE-3) were added to the existing SVE system. The purpose of these wells was to aid in the remediation effort by targeting two additional depth intervals where elevated VOC concentrations were observed during the soil investigations. In addition to SVE-2 and SVE-3, a vapor monitoring well (VMW-4) was installed at the same interval as SVE-2 to monitor the radius of influence of the SVE system within an interval of elevated VOC concentrations.

Fieldwork Summary

Soil Boring Investigation

A total of four confirmatory soil borings (CSB-1 through CSB-4) were drilled with locations shown on Figure 1. Boreholes were drilled using a hollow stem auger method. Each of the soil borings was drilled to a total depth of 200 feet (ft) below ground surface (bgs) or refusal, whichever was encountered first. The lithology at each boring is shown in Table 1 and the depths of each boring are as follows:

- CSB-1 was drilled to a depth of 95 ft bgs.
- CSB-2 was drilled to a depth of 202 ft bgs.
- CSB-3 was drilled to a depth of 165 ft bgs.

- CSB-4 was drilled to a depth of 201 ft bgs.

At each soil boring location, drilling was first advanced to 80 ft bgs and the drill cuttings were observed for lithological logging. From 80 to 200 ft bgs (or refusal), a 2-foot-long, 2-inch outer diameter (OD) stainless steel split spoon was used to collect 2-ft soil samples at 5-ft intervals. The soil sampling plan also included the collection of an additional split spoon sample from the bottom 2 ft of the boring, either from 198 to 200 ft bgs or from the 2-ft interval directly above the depth of refusal (if possible).

The split spoon sampler was driven into the soil at each 5-ft interval using a free-falling 140-pound (lb) hammer on the drill rig to perform a standard penetration test (SPT) to determine the soil properties. The SPT blow counts were recorded and shown on each of the boring logs, which are provided in Attachment 1. If a void was encountered, and/or poor or no recovery occurred, a split spoon was driven at the next 2-ft interval. For example, if a void was encountered from 80 to 82 ft bgs, then the collection of a 2-ft core was then attempted from 82 to 84 ft bgs.

After opening the split spoon sampler, the soil was screened with a 11.7 EV photoionization detector (PID) and the soil lithology was recorded on a soil boring log. Soil was screened with the PID by taking a direct measurement from the soil core, and also from a headspace reading. Direct measurements were taken by splitting the core with a stainless steel spoon every 6 inches down the core length and then placing the PID within the freshly sliced soil. Headspace samples were collecting by using a stainless steel spoon to place soil from the core into a glass jar (as provided by the laboratory) and covering it with aluminum foil. The aluminum foil was secured around the top of the jar with a rubber band to make the jar airtight. After 10 minutes in the sun, a small puncture was made in the foil and the PID was inserted into the headspace of the jar to collect the measurement. Soil boring logs presenting borehole lithology are provided in Attachment 1. A general lithologic cross-section of the four borings is presented in Table 1.

Lithologically, the site is underlain by fine material, mostly silt and clay which then transitions into decomposing limestone and then competent limestone bedrock. While there are few shallow sand deposits in CSB-1, CSB-2, and CSB-3, they are mostly mixed with silt and/or clay. Soils were soft and loose up to approximately 70 ft bgs and the open boreholes were very unstable.

As previously described in the CMS (ERTEC 2005), there is a narrow linear structural depression, karst solution feature or trough, that extends east-west just north of location CSB-3. CSB-4 is located within this trough. As shown on Table 1, CSB-1, CSB-2, and CSB-3 all encountered decomposing limestone at approximately 75 to 80 ft bgs, while decomposing limestone was not encountered within borehole CSB-4 and is presumed to be deeper. Competent bedrock was encountered in both CSB-1 (95 ft bgs) and CSB-3 (165 ft bgs) before reaching the planned total depth of 200 ft bgs.

PID measurements are presented in Table 2 for each 5-ft depth interval from 80 ft to the total depth for each boring. CSB-4 had the highest PID measurements with CSB-2 also having elevated (above 5 parts per million [ppm]) PID measurements. The highest PID measurement (105.8 ppm) was recorded from the 100 to 105 ft bgs interval within CSB-4.

Soil samples were collected for laboratory analyses from the depth intervals specified in the U.S. Environmental Protection Agency (EPA)-approved Final CMS Report (ERTEC 2005), as well as from other depth intervals with observed elevated PID measurements. Prescribed soil samples were collected from staggered 20-foot vertical intervals as specified in the Final CMS Report (shown as highlighted cells in Table 2).

VOC samples were collected using pre-preserved Terra Core™ sample kits provided by the laboratory. All of the collected soil samples were analyzed by the laboratory for site COCs (acetone, methylene chloride, carbon tetrachloride, and chloroform). In addition, 25 percent of the collected samples were analyzed for the target compound list (TCL) for VOCs. Table 3 presents the analytical data for the site

COCs, along with the target cleanup goals presented in the EPA-approved Final CMS Report (ERTEC 2005). Laboratory analytical data packages are provided in Attachment 2.

Soil Sampling Data Evaluation

This section presents the evaluation of the laboratory analytical data for the collected soil samples relative to the target cleanup levels for the site COCs.

Soil boring **CSB-1** had poor to no soil sample recovery within the 80 to 100 ft interval, and competent bedrock was encountered at 95 ft bgs. Only one sample was recovered from the 85 to 90 ft interval with a "0" PID measurement. Therefore, this boring location offered no data within the planned investigation interval of 100 to 200 ft bgs.

CSB-3 also had poor recovery, often with not enough material to collect a sample. It also had low PID measurements ranging from 0 to 1.1 ppm from the limited amount of soil that was extracted from the borehole. Enough soil was recovered from the 90 to 95 ft interval (non-prescribed interval) and from the 130 to 135 ft prescribed interval for laboratory analysis. As shown in Table 3, no COCs were detected in the soil sample from the 90 to 95 ft interval. For the 130 to 135 ft prescribed interval sample, neither acetone nor methylene chloride were detected. Low levels of carbon tetrachloride and chloroform were detected in this sample at levels well below their respective target cleanup goals.

Within boring **CSB-2**, carbon tetrachloride, chloroform and methylene chloride were detected at concentrations above the target cleanup levels as described below.

- Carbon Tetrachloride concentrations were above the target cleanup level of 30 micrograms per kilogram ($\mu\text{g}/\text{kg}$) within the following depth intervals: 115 to 120 ft bgs (250 $\mu\text{g}/\text{kg}$); 150 to 155 ft bgs (41 $\mu\text{g}/\text{kg}$); and 185 to 190 ft bgs (38,000 $\mu\text{g}/\text{kg}$). Of these depth intervals, only the 185 to 190 ft bgs interval was a prescribed interval.
- One chloroform concentration was above the target cleanup level of 300 $\mu\text{g}/\text{kg}$ within the prescribed depth interval of 185 to 190 ft bgs (1,700 $\mu\text{g}/\text{kg}$).
- One methylene chloride concentration was above the target cleanup level of 10 $\mu\text{g}/\text{kg}$ within the following the prescribed depth interval of 185 to 190 ft bgs (32 $\mu\text{g}/\text{kg}$).

Within **CSB-4**, all four site COCs (acetone, carbon tetrachloride, chloroform, and methylene chloride) were detected at concentrations above the target cleanup levels as described below.

- One acetone concentration was above the target cleanup level of 8,000 $\mu\text{g}/\text{kg}$ within the following the prescribed depth interval of 197 to 199 ft bgs (11,000 $\mu\text{g}/\text{kg}$).
- Carbon tetrachloride concentrations were above the target cleanup level of 30 $\mu\text{g}/\text{kg}$ within the following intervals: 100 to 105 ft bgs (17,000,000 $\mu\text{g}/\text{kg}$); 115 to 120 ft bgs (2,100 $\mu\text{g}/\text{kg}$); 135 to 140 ft bgs (13,000 $\mu\text{g}/\text{kg}$); 155 to 160 ft bgs (2,000 $\mu\text{g}/\text{kg}$); 180 to 185 ft bgs (1,400 $\mu\text{g}/\text{kg}$); 197 to 199 ft bgs (65,000 $\mu\text{g}/\text{kg}$); and 199 to 201 ft bgs (12,000 $\mu\text{g}/\text{kg}$). All of these depth intervals were prescribed intervals with the exception of the 180 to 185 ft depth interval.
- Chloroform concentrations were above the target cleanup level of 300 $\mu\text{g}/\text{kg}$ within the following intervals: 100 to 105 ft bgs (9,000 $\mu\text{g}/\text{kg}$); 115 to 120 ft bgs (860 $\mu\text{g}/\text{kg}$); 135 to 140 ft bgs (2,000 $\mu\text{g}/\text{kg}$); 155 to 160 ft bgs (1,200 $\mu\text{g}/\text{kg}$); 175 to 180 ft bgs (15,000 $\mu\text{g}/\text{kg}$); 180 to 185 ft bgs (8,600 $\mu\text{g}/\text{kg}$); 197 to 199 ft bgs (39,000 $\mu\text{g}/\text{kg}$); and 199 to 201 ft bgs (5,200 $\mu\text{g}/\text{kg}$). All of these depth intervals were prescribed intervals with the exception of the 180 to 185 ft depth interval.

- Methylene chloride concentrations were above the target cleanup level of 10 µg/kg within the following intervals: 135 to 140 ft bgs (62 µg/kg); 155 to 160 ft bgs (40 µg/kg); 175 to 180 ft bgs (1,700 µg/kg); 180 to 185 ft bgs (340 µg/kg); and 197 to 199 ft bgs (5,200 µg/kg). All of these depth intervals were prescribed intervals with the exception of the 180 to 185 ft depth interval.

The soil sample intervals with COC concentrations above the target cleanup levels noted above were primarily composed of lean clay and silt, with low permeability.

Borehole Abandonment

Soil borings CSB-1, CSB-2, and CSB-4 were abandoned by the pressure-grouting method using a tremie pipe from the bottom of the borehole to 6 inches bgs with a cement-bentonite slurry. The top 6 inches of each borehole was filled with sand. CSB-3 was not abandoned because vapor monitoring well VMW-4 was installed within the borehole, as further described below.

Soil Vapor Extraction Well Installation

Two soil vapor extraction wells (SVE-2 and SVE-3) were installed slightly northwest of CSB-4 (Figure 1). The screened intervals of the SVE wells were placed at the two depth intervals that had the highest site COC concentrations, as detected in boring CSB-4. The SVE-2 screen was installed from 100 to 105 ft bgs and the SVE-3 screen was installed from 195 to 200 ft bgs.

Well construction logs are provided in Attachment 3. The SVE wells were installed using the air rotary method. The SVE wells were constructed with 4-inch-diameter Schedule 40 polyvinyl chloride (PVC) casing and 5 ft of 4- inch-diameter Schedule 40, 40-slot (0.040-inch) screen, which allows for high airflow. Gravel Pack #3 from Southern Products & Silica Company was placed around the entirety of the well screen and up to at least 2 ft above the well screen. Gravel Pack #3 is coarse sand size material. Above the gravel pack, and acting as a preliminary seal and barrier from the bentonite, a 1-ft layer of 20/30 fine silica sand was placed around the well. Above the fine sand seal, a bentonite seal was poured and hydrated. Last, a cement-bentonite-water slurry was mixed and poured to 6 inches bgs to allow room at the surface for the well pad. Well completion was flush-mount with a steel well vault within a 2-feet-by-2-feet-by-6-inch concrete pad.

Due to repetitive caving from shallow soft/loose soils, an outer casing was installed from ground surface to 123 ft bgs during the installation of SVE-3.

Photos of borehole drilling, well installation, well completion and the investigation derived waste (IDW) staging area are provided in Attachment 4.

Vapor Monitoring Well Installation

One vapor monitoring well, VMW-4, was installed and is located within borehole CSB-3 (Figure 1). The VMW-4 screen was installed from 95 to 105 ft bgs. The 95 to 105 ft bgs screened interval was selected to monitor the influence of SVE-2, which was screened from 100 to 105 ft bgs, where the highest carbon tetrachloride concentration was detected in nearby CSB-4.

The well construction log for VMW-4 is provided in Attachment 3. VMW-4 was installed using the hollow-stem auger method. VMW-4 was constructed with 2-inch-diameter Schedule 40 PVC casing and 10 ft of 2-inch-diameter Schedule 40, 20-slot (0.020-inch) screen from 95 to 105 ft bgs. Gravel Pack #3 from Southern Products & Silica Company was placed around the entirety of the well screen and up to at least 2 ft above the well screen interval. Above the gravel pack, a bentonite seal was poured and hydrated. Last, a cement-bentonite-water slurry was mixed and poured to 6 inches bgs to allow room at the surface for the well pad. Well completion was flush-mount with a steel well vault within a 2-feet-by-2-feet-by-6-inch concrete pad. Photos of VMW-4 are provided in Attachment 4.

Waste Management

Two types of IDW were generated during the sampling events, decontamination water and soil cuttings. Soil from each boring and decontamination water were put in separate 55-gallon metal drums, labeled, and staged on pallets in a central area adjacent to the investigation site.

Three soil IDW samples were collected on December 5, 2016, for laboratory analyses. The chain-of-custody forms for the IDW samples are provided in Attachment 5. As shown in the chain-of-custody forms, three different soil IDW samples were collected to be representative of the three varying levels of observed COC impacts. Composite sample PZA-IDW-SO01 was collected from the CSB-1 soil drums, PZA-IDW-SO021 was collected from the CSB-2 soil drums, and PZA-IDW-SO3 was collected from the soil drums for CSB-3/VMW-4, CSB-4, SVE-2, and SVE-3.

The IDW soil samples were sent to the laboratory for analyses for toxicity characteristic leaching procedure (TCLP) VOCs, TCLP semi-volatile compounds (SVOCs), total petroleum hydrocarbons (TPH), total organic halides (TOX), polychlorinated biphenyls (PCBs), TCLP total metals, and moisture.

Results from the recent soil IDW sampling have not been received. Once received, the laboratory results will be provided to Pfizer and Veolia (Pfizer's waste management contractor) to determine the appropriate disposal method.

The decontamination water will be pumped from the drums into the onsite groundwater treatment plant.

Conclusions and Recommendations

Based on the soil sampling results from the soil boring investigation, it is clear that the detected concentrations of site COCs in two of the confirmatory soil borings (CSB-2 and CSB-4) are well above the target cleanup levels contained in the EPA-approved Final CSM Report (ERTEC 2005). In the soil sample intervals where the COC concentrations were above target cleanup levels, the soils were primarily composed of lean clay and silt, with low permeability. In light of the sampling results, it was decided with Pfizer to install the two additional SVE wells (SVE-2 and SVE-3) and one additional VMW (VMW-4) to enhance the existing SVE system, with the goal of removing more COC mass from the vadose zone in the impacted area. However, alternate target cleanup levels should be evaluated given the low-permeability clay-rich soils at depth.

As discussed with Pfizer, CH2M worked with ERTEC to connect the new SVE wells to the existing SVE system before proceeding with short and long term SVE optimization testing.

References

ERTEC. 2005. *Final Corrective Measures Study (CMS)*

Pfizer. 2016. "Soil Investigations SVE Corrective Measures Study (CMS), Former Pfizer Pharmaceuticals LLC, Arecibo, Puerto Rico". Submitted to U.S. Environmental Protection Agency (EPA), 8 May.

Tables

Table 1**Generalized Lithological Cross-section of 2016 Soil Borings**

Soil Boring Investigation and Vapor Well Installation Technical Memorandum

Pfizer Pharmaceuticals LLC- Arecibo Facility

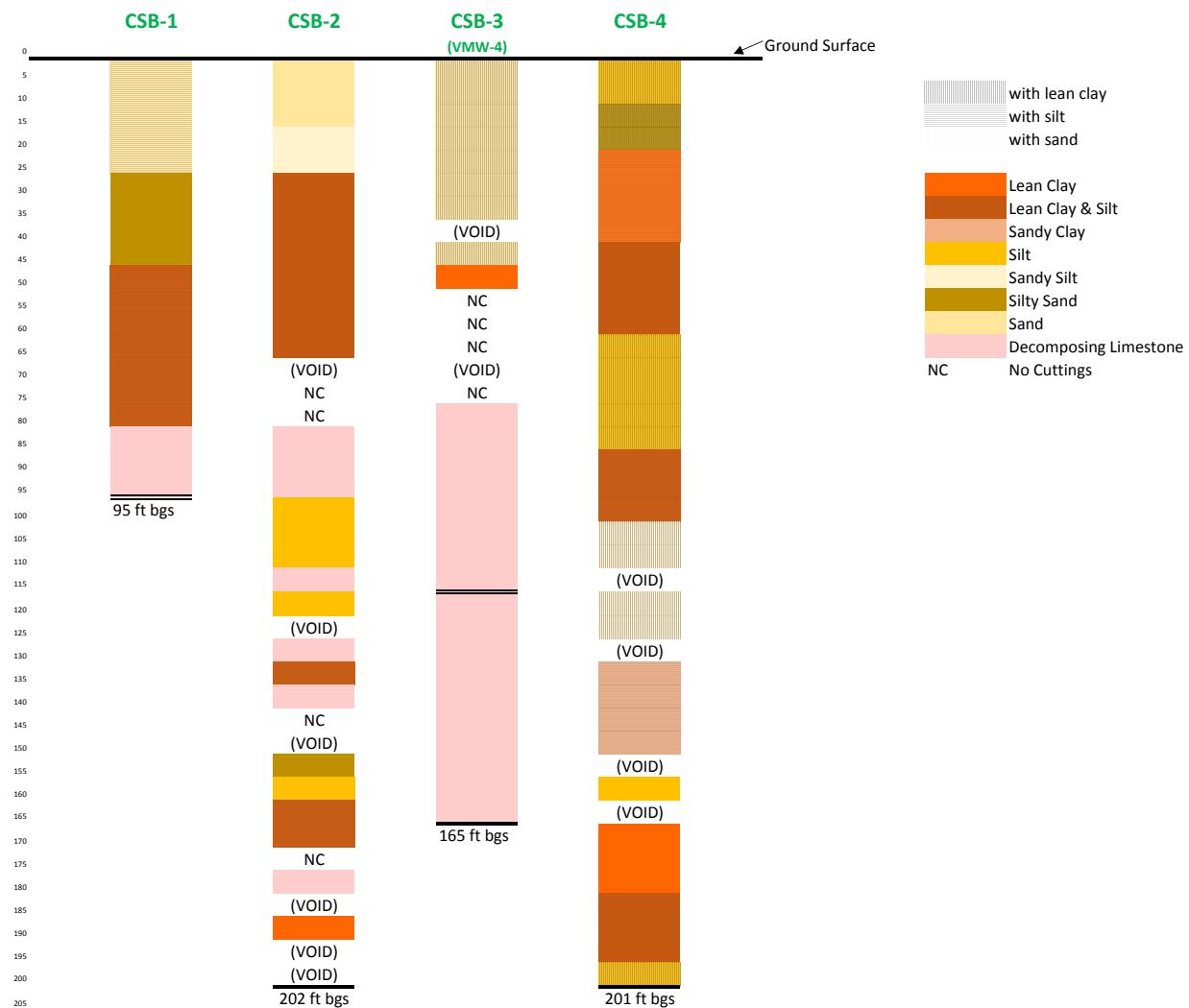


Table 2**PID VOC Measurements for Soil Borings**

*Soil Boring Investigation and Vapor Well Installation Technical Memorandum
Pfizer Pharmaceuticals LLC- Arecibo Facility*

Sample ID Suffix	Sample Depth Interval (ft)	Confirmatory Soil Boring							
		CSB-1		CSB-2		CSB-3 (VMW-4)		CSB-4	
		Sample ID	PID Reading						
A	80-85	--	NR	--	0	--	0	--	0
B	85-90	--	0	CSB-2-B	0	--	0.6	--	0.3
C	90-95	--	NR	--	0	CSB-3-C	0	--	0.9
D	95-100	--	NR	--	0	--	0.4	--	1.8
1	100-105			--	0	--	0	CSB-4-1	105.8
2	105-110			CSB-2-2	0	--	0	--	6.4
3	110-115			--	0	--	NR	--	4.2
4	115-120			CSB-2-4 (FD)	2.1	--	NR	CSB-4-4 (MS/MSD)	0.8
5	120-125			--	NR	--	0	--	1.6
6	125-130			CSB-2-6	7.1	--	0.6	--	0.5
7	130-135			--	0	CSB-3-7	1.1	--	2.3
8	135-140			--	0	--	--	CSB-4-8	1.7
9	140-145			--	NR	--	0	--	1.8
10	145-150			CSB-2-10	0	--	--	--	0.8
11	150-155			--	7.6	--	0	--	VOID
12	155-160			CSB-2-12	48.2			CSB-4-12	0.1
13	160-165			--	5.8			--	VOID
14	165-170			CSB-2-14	13.1			--	0.7
15	170-175			--	NR			--	0.3
16	175-180			--	0			CSB-4-16	1.9
17	180-185			--	VOID			CSB-4-17	2
18	185-190			CSB-2-18	1.6			--	0.8
19	190-195			--	VOID			--	6.1
20	195-200			--	VOID			CSB-4-20 (FD)	6.9
21	198-200			--	VOID			CSB-4-21	6.1

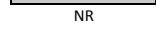
 Prescribed sample interval
 Non-prescribed sample interval
 Not sampled due to refusal at a prior interval
 NR No Recovery
 -- Sample not collected
 _____ Refusal at this Interval

Table 3

Laboratory Analytical Data

Soil Boring Investigation and Vapor Well Installation Technical Memorandum

Pfizer Pharmaceuticals LLC- Arecibo Facility

Sample ID	Sample Depth Interval (ft)	CSB-1				CSB-2				CSB-3 (VMW-4)				CSB-4			
		Acetone ¹	Carbon Tetrachloride	Chloroform	Methylene Chloride	Acetone	Carbon Tetrachloride	Chloroform	Methylene Chloride	Acetone	Carbon Tetrachloride	Chloroform	Methylene Chloride	Acetone	Carbon Tetrachloride	Chloroform	Methylene Chloride
	8,000 ²	30	300	10	8,000	30	300	10	8,000	30	300	10	8,000	30	300	10	
CSB-X-A	80-85	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CSB-X-B	85-90	--	--	--	--	9 U	3 J	2 J	4 U	--	--	--	--	--	--	--	--
CSB-X-C	90-95	--	--	--	--	--	--	--	--	17 U	4 U	4 U	4 U	--	--	--	--
CSB-X-D	95-100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CSB-X-1	100-105					--	--	--	--	--	--	--	--	41,000 U	17,000,000	9,000 J	20,000 U
CSB-X-2	105-110					20	4 U	4 U	4 U	--	--	--	--	--	--	--	--
CSB-X-3	110-115					--	--	--	--	NR	NR	NR	NR	--	--	--	--
CSB-X-4	115-120					6 J*	250	15*	4 U	--	--	--	--	8U	2,100	860	7
CSB-X-5	120-125					--	--	--	--	--	--	--	--	--	--	--	--
CSB-X-6	125-130					16	11	3 J	4 U	--	--	--	--	--	--	--	--
CSB-X-7	130-135					--	--	--	--	360 U	11	5	4 U	--	--	--	--
CSB-X-8	135-140					--	--	--	--	--	--	--	--	29	13,000	2,000	62
CSB-X-9	140-145					--	--	--	--	--	--	--	--	--	--	--	--
CSB-X-10	145-150					11	14	2J	4 U	--	--	--	--	--	--	--	--
CSB-X-11	150-155					72	41	8	4 U	--	--	--	--	--	--	--	--
CSB-X-12	155-160					390 U	26	5	5 U	--	--	--	--	18 U	2,000	1,200	40
CSB-X-13	160-165					--	--	--	--	--	--	--	--	--	--	--	--
CSB-X-14	165-170					53	4 U	4 U	4 U					--	--	--	--
CSB-X-15	170-175					--	--	--	--					--	--	--	--
CSB-X-16	175-180					--	--	--	--					140	12	15,000	1,700
CSB-X-17	180-185					--	--	--	--					430 U	1,400	8,600	340
CSB-X-18	185-190					17	38,000	1,700	32					--	--	--	--
CSB-X-19	190-195					--	--	--	--					--	--	--	--
CSB-X-20	195-200					--	--	--	--					11,000	65,000*	39,000	5,200*
CSB-X-21	Final Interval					--	--	--	--					550 U	12,000	5,200	270 U

NR No Recovery

-- Sample not collected

— Refusal at this Interval

U Non-detect

J Estimated concentration

¹ All sample data reported in ug/kg² Target Cleanup Levels [as specified in the Final CMS (ERTEC, 2005)]

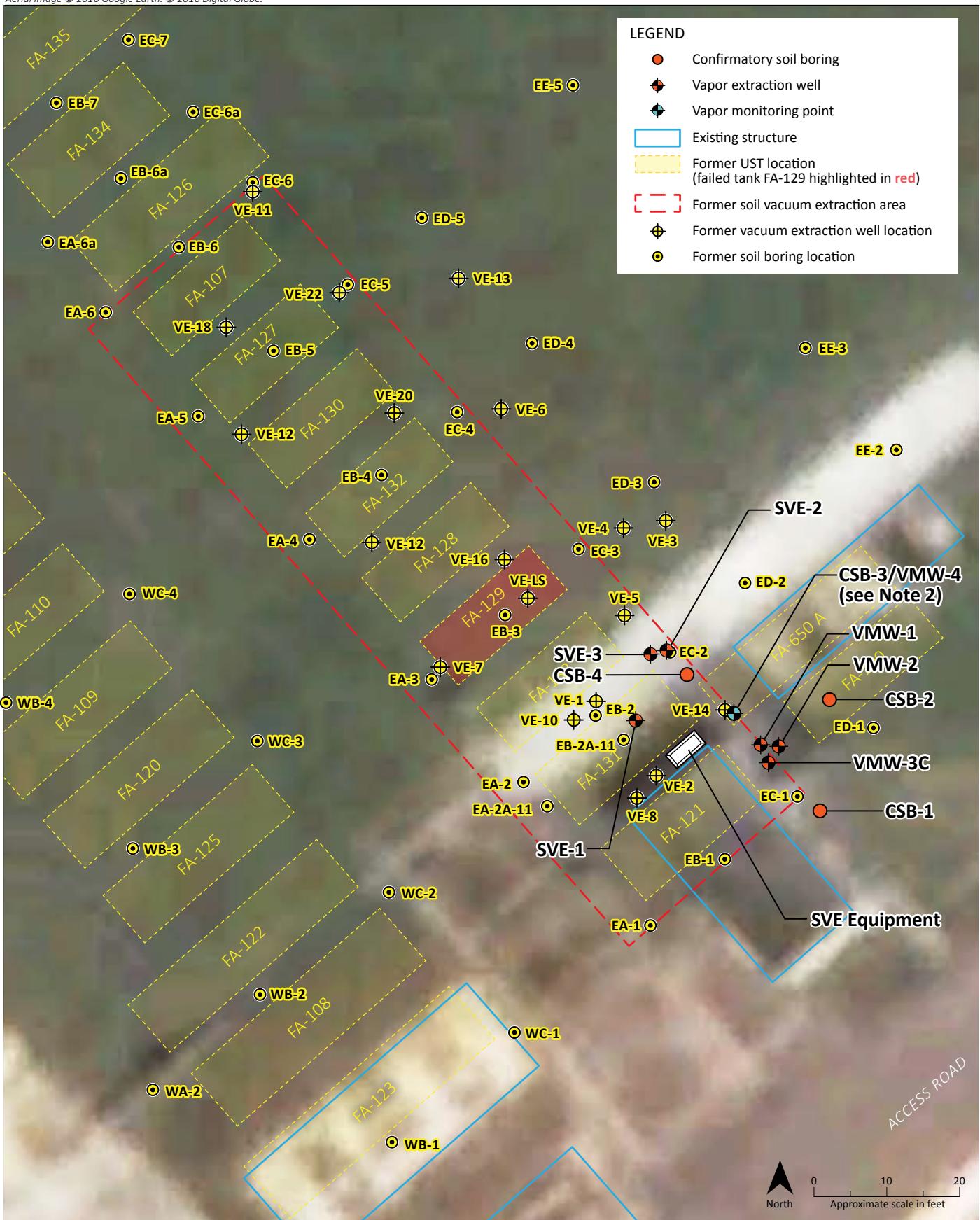
* Field Duplicate Sample data used due to higher concentration than associated native sample

Non-prescribed Sample Interval

Prescribed Sample Interval

Blue bold number Analytical datum is over the associated regulatory criteria

Figure



NOTES

1. UST = underground storage tank.
2. Vapor monitoring point (VMW-4) is collocated with soil boring CSB-3.
3. Former well and boring locations from CDM, 1984, and Soil Tech, 1994. Former UST locations from CDM, 1984, and Ertech, 1994.
4. All locations approximate.

Figure 1.
Soil Vapor Well and Soil Boring Locations
Soil Boring Investigation and Vapor Well Installation Technical Memorandum
Pfizer Pharmaceuticals LLC – Arecibo Facility

Attachment 1

Soil Boring Logs

PROJECT NUMBER
663222.02.05BORING NUMBER
CSB -1

SHEET 1 OF 3

SOIL BORING LOG

PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation**LOCATION :** Arecibo, PR**WEATHER :** Overcast, ~100°F/feels like 121°F**DRILLING CONTRACTOR :** ERTEC, driller: A. Claudio**DRILLING METHOD AND EQUIPMENT USED :** CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2" x 2" split spoon**WATER LEVELS :** --**START:** 08/25/16 1045**END:** 08/26/16 1020**LOGGER :** D. Whitaker

DEPTH BELOW SURFACE (FT)	STANDARD PENETRATION TEST RESULTS			SOIL DESCRIPTION	COMMENTS	
	INTERVAL (FT)	RECOVERY (FT)	#/TYPE		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.	OVM (ppm): Breathing Zone Above Hole
0				N/A	0.0-15.0 ft: Poorly Graded SAND with SILT (SP-SM) brown (7.5YR 4/4), very fine to fine sand with silt, mildly cohesive, moist (rain yesterday)	*0-80 ft: Soil lithology based on cuttings 0.0 0.0
10				N/A		
15				N/A		
20				N/A	15.0-25.0 ft: Poorly Graded SAND with SILT (SP-SM) reddish brown (5YR 4/4), poorly graded very fine to fine sand with silt, moderately cohesive, dry	0.0 0.0
25				N/A		
30				N/A	25.0-45.0 ft: SILTY SAND (SM) dark reddish brown (5YR 3/4), silt and fine sand, dry, cohesive	0.0 0.0
35				N/A		
40				N/A		

PROJECT NUMBER
663222.02.05BORING NUMBER
CSB -1

SHEET 2 OF 3

SOIL BORING LOG

PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation**LOCATION :** Arecibo, PR**WEATHER :** Overcast, ~100°F/feels like 121°F**DRILLING CONTRACTOR :** ERTEC, driller: A. Claudio**DRILLING METHOD AND EQUIPMENT USED :** CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2' x 2" split spoon**WATER LEVELS :** --**START:** 08/25/16 1045**END:** 08/26/16 1020**LOGGER :** D. Whitaker

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION		COMMENTS	
					6"-6"-6"	(N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
40					40.0-45.0: SILTY SAND (SM) dark reddish brown (5YR 3/4), silt and fine sand, dry, cohesive		0.0	0.0
	Continuous Drilling			N/A	45.0-65.0: CLAYEY SILT with SAND (ML) dark reddish brown (5YR 3/4), lean clay and silt with little fine sand, cohesive, low plasticity, dry		0.0	0.0
50							0.0	0.0
	Continuous Drilling			N/A				
60								
	Continuous Drilling			N/A	65.0-80 ft: CLAYEY SILT with SAND (ML) dark reddish brown (5YR 3/4) changing to yellowish red (5YR 5/6), lean clay and silt with little fine sand, cohesive, low plasticity, saturated (perched water table)		0.0	0.0
70								
	Continuous Drilling			N/A			0.0	0.0
80								

ch2m	PROJECT NUMBER 663222.02.05	BORING NUMBER CSB -1	SHEET 3 OF 3			
	SOIL BORING LOG					
PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation	LOCATION : Arecibo, PR					
WEATHER : Overcast, ~100°F/feels like 121°F	DRILLING CONTRACTOR : ERTEC, driller: A. Claudio					
DRILLING METHOD AND EQUIPMENT USED : CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2' x 2" split spoon						
WATER LEVELS : --	START: 08/25/16 1045	END: 08/26/16 1020	LOGGER : D. Whitaker			
DEPTH BELOW SURFACE (FT)	STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS			
INTERVAL (FT)	#/TYPE	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.			
6"-6"-6"	(N)		OVM (ppm): Breathing Zone Above Hole			
80	80-82	0.0	SPT-1	50/2"	80.0-82.0 ft: No Recovery	
85-87	1.32		SPT-2	34-17-4-38 (21)	85.0-86.35 ft: <u>DECOMPOSING LIMESTONE</u> , reddish yellow (7.5YR 7/6), fine sand and mostly silt size grains, moist, partially cemented, very stiff	0.0 0.0
90	90-92	0.0	SPT-3	50/1"	90.0-92.0 ft: No Recovery	
95-97	0.0		SPT-4	50/3"	95.0-97.0 ft: No Recovery	
100					Total Depth = 97 ft bgs Refusal at 95.25'	
110						
120						

PROJECT NUMBER
663222.02.05BORING NUMBER
CSB -2

SHEET 1 OF 6

SOIL BORING LOG

PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation**LOCATION :** Arecibo, PR**WEATHER :** 88°F/feels like 100°F, wind 8 mph E**DRILLING CONTRACTOR :** ERTEC, driller: A. Claudio**DRILLING METHOD AND EQUIPMENT USED :** CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2" x 2" split spoon**WATER LEVELS :** not encountered**START :** 08/29/16 1100**END :** 09/08/16 1340**LOGGER :** D. Whitaker

DEPTH BELOW SURFACE (FT)	STANDARD PENETRATION TEST RESULTS			SOIL DESCRIPTION	COMMENTS	
	INTERVAL (FT)	RECOVERY (FT)	#/TYPE		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.	OVM (ppm): Breathing Zone Above Hole
0				N/A	0.0-15.0 ft: Well Graded SAND (SW) strong brown (7.5YR 4/6), fine to coarse sand with trace clean clay, non-plastic except trace low plasticity clay, dry	0.0 0.0
10	Continuous Drilling			N/A	15.0-25.0 ft: SANDY SILT (ML) reddish brown (5YR 4/4), silt and little fine sand, trace lean clay, cohesive, low plasticity, dry	0.0 0.0
20				N/A	25.0-64.0 ft: SILT/LEAN CLAY (ML/CL) reddish brown (5YR 4/4), silt and lean clay, cohesive, low plasticity, trace fine sand, dry	0.0
30	Continuous Drilling			N/A		0.3 0.0
40						

PROJECT NUMBER
663222.02.05BORING NUMBER
CSB -2

SHEET 2 OF 6

SOIL BORING LOG

PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation**LOCATION :** Arecibo, PR**WEATHER :** 88°F/feels like 100°F, wind 8 mph E**DRILLING CONTRACTOR :** ERTEC, driller: A. Claudio**DRILLING METHOD AND EQUIPMENT USED :** CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2' x 2" split spoon**WATER LEVELS :** not encountered**START :** 08/29/16 1100**END :** 09/08/16 1340**LOGGER :** D. Whitaker

DEPTH BELOW SURFACE (FT)	STANDARD PENETRATION TEST RESULTS			SOIL DESCRIPTION	COMMENTS	
	INTERVAL (FT)	RECOVERY (FT)	#/TYPE		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.	OVM (ppm): Breathing Zone Above Hole
40		Continuous Drilling		N/A		0.0 0.0
50		Continuous Drilling		N/A		0.0 0.0
60						
64.0-67.0 ft:	VOID			VOID		0.0 0.0
70		VOID				Stop: 08/29/16 Start: 08/31/16
70				70.0-80.0 ft: no cuttings coming out (Limestone?)		
80		Continuous Drilling		N/A		

PROJECT NUMBER
663222.02.05BORING NUMBER
CSB -2

SHEET 3 OF 6

SOIL BORING LOG

PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation**LOCATION :** Arecibo, PR**WEATHER :** 88°F/feels like 100°F, wind 8 mph E**DRILLING CONTRACTOR :** ERTEC, driller: A. Claudio**DRILLING METHOD AND EQUIPMENT USED :** CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2" x 2" split spoon**WATER LEVELS :** not encountered**START :** 08/29/16 1100**END :** 09/08/16 1340**LOGGER :** D. Whitaker

DEPTH BELOW SURFACE (FT)	STANDARD PENETRATION TEST RESULTS			SOIL DESCRIPTION	COMMENTS		
	INTERVAL (FT)		#/TYPE		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.	OVM (ppm): Breathing Zone Above Hole	
	RECOVERY (FT)						
80	80-82	2.0	SPT-1	48-10-5-5 (15)	80.0-82.0 ft: <u>DECOMPOSING LIMESTONE /SAND SILT (ML)</u> mottled reddish yellow (7.5YR 7/6) and very pale brown (10YR 8/4), moist, silt and fine to coarse sand with trace lean clay, cohesive, low plasticity, stiff consistency	0.0 0.0	
	85-87	0.9	SPT-2	(50/2")	85.0-85.9 ft: <u>DECOMPOSINT LIMESTONE /SAND SILT (ML)</u> mottled reddish yellow (7.5YR 7/6) and very pale brown (10YR 8/4), moist, silt and fine to coarse sand with trace lean clay, cohesive, low plasticity, stiff consistency	0.0 0.0	
						*Collect soil sample CSB-2-B @ 0925 for short list VOCs (8260 B) (85-85.9ft)	
90	90-92	0.1	SPT-3	(50/3")	90.0-90.1 ft: <u>WEATHERED LIMESTONE pink (2.5YR 8/4)</u> , fine gravel with sand fine angular to subangular limestone gravel and fine to coarse sand, moist, very dense	0.0 0.0	
	95-97	1	SPT-4	42/(50/5")	95.0-96.0 ft: <u>WEATHERED LIMESTONE SILT (ML)</u> very pale brown (10YR 8/4), silt with little fine to medium sand, moist, hard, non-cohesive	0.0 0.0	
100	100-102	0.35	SPT-5	(50/4")	100.0-102.0 ft: <u>WEATHERED LIMESTONE SILT (ML)</u> very pale brown (10YR 8/4), silt with little fine to medium sand, moist, hard, non-cohesive	0.0 0.0	
	105-107	0.4	SPT-6	(50/5")	105.0-107.0 ft: <u>WEATHERED LIMESTONE SILT (ML)</u> very pale brown (10YR 8/4), silt with little fine to medium sand, moist, hard	0.0 0.0	
						Collect CSB-2 for sample at 1410 for short list VOCs	
						Stop: 08/31/16	
						Start 09/02/16	
110	110-112	0.1	SPT-7	(50/1")	110.0-110.1 ft: <u>DECOMPOSINT LIMESTONE</u> white (10YR 8/1), silt with trace fine sand, dry, hard	0.0 0.0	
	115-117	1.4	SPT-8	50-19-12-12 (31)	115.0-115.5 ft: <u>DECOMPOSING LIMESTONE</u> white (10YR 8/1), silt with trace fine sand, dry, hard 115.5-116.4 ft: <u>SILT (ML) with LEAN CLAY</u> strong brown (7.5YR 5/4), silt with lean clay, medium plasticity, cohesive, trace fine sand and limestone gravel, moist, hard	2.1 0.4	
						*Collect soil sample CSB-2-4 @ 1045 plus field duplicate	
						Collect soil sample CSB-26-4 @ 1050	
120							

PROJECT NUMBER
663222.02.05BORING NUMBER
CSB -2

SHEET 4 OF 6

SOIL BORING LOG

PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation**LOCATION :** Arecibo, PR**WEATHER :** 88°F/feels like 100°F, wind 8 mph E**DRILLING CONTRACTOR :** ERTEC, driller: A. Claudio**DRILLING METHOD AND EQUIPMENT USED :** CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2' x 2" split spoon**WATER LEVELS :** not encountered**START :** 08/29/16 1100**END :** 09/08/16 1340**LOGGER :** D. Whitaker

DEPTH BELOW SURFACE (FT)			STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS			
INTERVAL (FT)		#/TYPE			DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.			
RECOVERY (FT)	6"-6"-6"-6" (N)				OVM (ppm): Breathing Zone	Above Hole		
120	120-122		SPT-9	120.0-122.0 ft: VOID	N/A	0.0		
	125-127	0.1	SPT-10	(50/2")	0.3	0.0		
					*Collect soil sample CSB-2-6 @ 1110			
	127-129	0.5	SPT-11	(50/4")	7.1	0.0		
					Stop: 09/02/16			
	130-132	0.1	SPT-13	(50/1")	0.0	0.0		
					Start: 09/06/16			
	135-137	0.1	SPT-13	(50/1")	0.0	0.0		
140					Skip interval due to multiple sample refusal and move to next pre-set sample interval			
150	145-147			145.0-147.0: VOID				
	147-149	0.5	SPT-14	(50/2")	147.0-147.5 ft: SILTY SAND (SM) very pale brown (10YR 7/4), silt and fine sand, ~70% cemented, moist, non-cohesive, very dense	0.0 0.0		
	150-152	0.6	SPT-15	(50/2")	150.0-150.6 ft: SILTY SAND (SM) mottled very pale brown (10YR 4/3) and reddish yellow (7.5YR 6/8), trace very dark brown (7.5YR 2.5/2) lean clay, silt and fine sand, trace cementation, cohesive, dry, very dense, trace chemical odor	7.6 0.0		
160	155-157	0.3	SPT-16	(50/1")	155.0-155.3 ft: SILT with SAND (ML) very pale brown (10YR 8/4), silt with little fine sand, dry, cohesive, some cemented/decomposing limestone rock, hard	48.2 0.0		

PROJECT NUMBER
663222.02.05BORING NUMBER
CSB -2

SHEET 5 OF 6

SOIL BORING LOG

PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation**LOCATION :** Arecibo, PR**WEATHER :** 88°F/feels like 100°F, wind 8 mph E**DRILLING CONTRACTOR :** ERTEC, driller: A. Claudio**DRILLING METHOD AND EQUIPMENT USED :** CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2' x 2" split spoon**WATER LEVELS :** not encountered**START :** 08/29/16 1100**END :** 09/08/16 1340**LOGGER :** D. Whitaker

DEPTH BELOW SURFACE (FT)	STANDARD PENETRATION TEST RESULTS			SOIL DESCRIPTION	COMMENTS	
	INTERVAL (FT)	RECOVERY (FT)	#/TYPE		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.	OVM (ppm): Breathing Zone Above Hole
160	160-162	0.25	SPT-17	(50/3")	160.0-160.25 ft: SILT (ML) with LEAN CLY (CL) and SAND strong brown (7.5YR 5/6), silt with lean clay and fine sand, cohesive, low to medium plasticity, dry, hard	5.8 0.0
	165-167	0.5	SPT-18	(50/4")	165.0-165.5 ft: SILT (ML) with LEAN CLY (CL) and SAND strong brown (7.5YR 5/6), silt with lean clay and fine sand, cohesive, low to medium plasticity, dry, hard	13.1 0.0
						*Collect soil sample CSB-2-14 @ 1155 (predetermined location)
170	170-172	0	SPT-19	(50/4")	170-172.0 ft: No Recovery	
	175-177	0.9	SPT-20	41-14-13-13 (27)	175.0-175.9 ft: Decomposing LIMESTONE/Poorly Graded SAND with SILT (SP-SM) pink (7.5Y 8/3), ~65% cemented, fine sand with silt/limestone	Stop: 09/07/16 0.0 0.0
180					180.0-186.0 ft: VOID	Rods drop to 186 ft bgs
	185-187	2	SPT-21	9-10-8-9 (18)	185.0-187.0 ft: LEAN CLAY (CL) with SAND yellowish red (5YR 4/6), lean clay with trace silt and little fine sand, medium plasticity, dry, very stiff	*Collect soil sample CSB-2-18 @ 1050 1.6 1.5 0.0
						trace chemical odor
190					188.0-202.0 ft: VOID/soft material	
200						

ch2m	PROJECT NUMBER 663222.02.05	BORING NUMBER CSB -2	SHEET 6 OF 6
	SOIL BORING LOG		
PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation	LOCATION : Arecibo, PR		
WEATHER : 88°F/feels like 100°F, wind 8 mph E	DRILLING CONTRACTOR : ERTEC, driller: A. Claudio		
DRILLING METHOD AND EQUIPMENT USED : CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2' x 2" split spoon			
WATER LEVELS : not encountered	START : 08/29/16 1100	END : 09/08/16 1340	LOGGER : D. Whitaker
DEPTH BELOW SURFACE (FT)	STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS
INTERVAL (FT)	#/TYPE	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
RECOVERY (FT)	6"-6"-6" (N)		OVM (ppm): Breathing Zone Above Hole
200			Rods drop at 202 ft bgs
-			
-		Total Depth = 204 ft bgs	
210			
-			
-			
220			
-			
-			
230			
-			
-			
240			

PROJECT NUMBER
663222.02.05BORING NUMBER
CSB -3

SHEET 1 OF 5

SOIL BORING LOG

PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation**LOCATION :** Arecibo, PR**WEATHER :** Mostly Cloudy, 84°F, wind 7 mph ENE**DRILLING CONTRACTOR :** ERTEC, driller: A. Claudio**DRILLING METHOD AND EQUIPMENT USED :** CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2' x 2" split spoon**WATER LEVELS :** --**START :** 08/23/16 1000**END :** 09/27/16**LOGGER :** D. Whitaker

DEPTH BELOW SURFACE (FT)	STANDARD PENETRATION TEST RESULTS			SOIL DESCRIPTION	COMMENTS		
	INTERVAL (FT)		#/TYPE				
	RECOVERY (FT)	6"-6"-6" (N)					
0	Continuous Drilling		N/A	0.0-15.0 ft: Well Graded SAND with LEAN CLAY and very fine GRAVEL (SW-SC) yellowish brown (10YR 5/8), very fine to coarse sand (mostly very fine to fine) with little lean clay and very fine subangular to subrounded gravel, dry, no to low plasticity (cohesive)	0.0		
10	Continuous Drilling		N/A	13.0-15.0 ft: Grout (from nearby well?)	0.0		
20	Continuous Drilling		N/A	15.0-35.0 ft: Poorly Graded SAND with LEAN CLAY and Fine GRAVEL (SP-SC) reddish brown (5YR 4/4), fine sand with lean clay and little fine subangular to subrounded limestone gravel, low plasticity, moist	0.0		
30	Continuous Drilling		N/A	35.0-40.0 ft: VOID	0.0		
40							

PROJECT NUMBER
663222.02.05BORING NUMBER
CSB -3

SHEET 2 OF 5

SOIL BORING LOG

PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation

LOCATION : Arecibo, PR

WEATHER : Mostly Cloudy, 84°F, wind 7 mph ENE

DRILLING CONTRACTOR : ERTEC, driller: A. Claudio

DRILLING METHOD AND EQUIPMENT USED : CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2' x 2" split spoon

WATER LEVELS : --

START : 08/23/16 1000

END : 09/27/16

LOGGER : D. Whitaker

DEPTH BELOW SURFACE (FT)	STANDARD PENETRATION TEST RESULTS			SOIL DESCRIPTION		COMMENTS	
	INTERVAL (FT)		#/TYPE	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.			DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
	RECOVERY (FT)	6"-6"-6"-6" (N)					OVM (ppm): Breathing Zone Above Hole
40					40.0-45.0 ft: Poorly Graded SAND with LEAN CLAY and Fine GRAVEL (SP-SC) reddish brown (5YR 4/4), fine sand with lean clay and little fine subangular to subrounded limestone gravel, low plasticity, dry	0.0	0.0
		Continuous Drilling		N/A	45.0-?? ft: LEAN CLAY (CL) brown (7.5YR 4/4) medium plasticity, moist, trace very fine to fine sand	0.0	0.0
50					50.0-70.0 ft: not getting cuttings, unsure if in limestone (not void) 52.0 ft: harder clay??	0.0	0.0
				N/A			becoming harder, mild chatter
60	50-70	No Cuttings and No Recovery		N/A			0.0
70							
71-73					71.0-73.0 ft: VOID		drop
80					75.0 ft: begin getting cuttings again limestone (decomposing) very pale yellow		moderate chatter

PROJECT NUMBER
663222.02.05BORING NUMBER
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SHEET 3 OF 5

SOIL BORING LOG

PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation**LOCATION :** Arecibo, PR**WEATHER :** Mostly Cloudy, 84°F, wind 7 mph ENE**DRILLING CONTRACTOR :** ERTEC, driller: A. Claudio**DRILLING METHOD AND EQUIPMENT USED :** CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2' x 2" split spoon**WATER LEVELS :** --**START :** 08/23/16 1000**END :** 09/27/16**LOGGER :** D. Whitaker

DEPTH BELOW SURFACE (FT)	STANDARD PENETRATION TEST RESULTS			SOIL DESCRIPTION	COMMENTS		
	INTERVAL (FT)		#/TYPE		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.	OVM (ppm): Breathing Zone Above Hole	
	RECOVERY (FT)						
80	80-82	1.0	SPT-1	5-1-WOH-WOH (1)	80.0-80.7 ft: Decomposing LIMESTONE very pale brown (10YR 8/4), saturated (perched water), very loose 80.7-81.0 ft: SILT (ML) red (2.5YR 5/6) silt with trace clay, cohesive, non-plastic, dry 85.0-86.3 ft: Decomposing LIMESTONE very pale brown (10YR 8/4) fine sand to fine gravel pieces, saturated (perched water table), medium dense	0.0 1455 @ 80 ft to begin SPT sampling appeared to be void @ bottom of run	
						0.6 0.0	
	85-87	1.3	SPT2	8-5-10-14 (15)			
90	90-92	0.65	SPT-3	50-50/1" (100/7")	90.0-90.65 ft: Decomposing LIMESTONE light red (2.5YR 7/6), dry to slightly moist, fine sand to fine gravel (angular to subangular), very dense	0.0 *Collect soil sample CSB-3-C at 1515 Stop: 8/23/16 Start: 08/24/16	
	95-97	0.4	SPT-4	(50/3")	95.0-95.4 ft: Decomposing LIMESTONE yellow (10YR 7/6), dry, fine sand grains with little silt, some cemented, very dense	0.4 0.0	
100	100-102	0.6	SPT-5	(50/4")	100.0-100.5 ft: Decomposing LIMESTONE yellow (10YR 7/6), dry, fine sand grains with little silt, some cemented, very dense	0.0 0.0	
	105-107	0.75	SPT-6	20-50/3" (70/9")	105.0-105.75 ft: Weathered LIMESTONE cemented into horizontally bedded sheets - massive, very pale brown (10YR 8/4), dry, fine sand grains with little silt, some cemented, very dense	0.0 0.0	
110	110-112	0	SPT-7	(50/0")	110.0 ft: No Recovery Sample Refusal	0.0	
					112.05 ft: No Recovery Sample Refusal		
	113-115		SPT-9	(50/1")	113.0-113.1 ft: Weathered LIMESTONE cemented into horizontally bedded sheets - massive, very pale brown (10YR 8/4), dry, fine sand grains with little silt, some cemented, very dense		
120							

PROJECT NUMBER
663222.02.05BORING NUMBER
CSB -3

SHEET 4 OF 5

SOIL BORING LOG

PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation**LOCATION :** Arecibo, PR**WEATHER :** Mostly Cloudy, 84°F, wind 7 mph ENE**DRILLING CONTRACTOR :** ERTEC, driller: A. Claudio**DRILLING METHOD AND EQUIPMENT USED :** CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2' x 2" split spoon**WATER LEVELS :** --**START :** 08/23/16 1000**END :** 09/27/16 1600**LOGGER :** D. Whitaker

DEPTH BELOW SURFACE (FT)	STANDARD PENETRATION TEST RESULTS			SOIL DESCRIPTION	COMMENTS	
	INTERVAL (FT)	RECOVERY (FT)	#/TYPE		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.	OVM (ppm): Breathing Zone Above Hole
120	120-122	0.5	SPT-10	50-50/4" (100/10")	120.0-120.5 ft: Decomposing LIMESTONE mottled very pale brown (10YR 6/8) and brownish yellow (10YR 6/8), well graded gravel with fine to coarse sand and trace lean clay, moist	0.6 0.0
130	130-132	0.1	SPT-11	(50/1")	Not enough soil to sample - auger down 2 ft	1.1 0.00
	132-134	0.4	SPT-12	(50/1")	132.0-132.4 ft: Decomposing LIMESTONE mottled very pale brown (10YR 6/8) and brownish yellow (10YR 6/8), well graded gravel with fine to coarse sand and trace lean clay, moist	*Collect soil sample @ 0840 for Short list VOCs 0.5 0.0
140	140-142	0.1	SPT-13	(50/2")	140.0-140.1 ft: Weathered LIMESTONE strong brown (7.5YR 5/6), coarse gravel size pieces of limestone, highly to moderately weathered	0.0 0.0
150	150-152	0.1	SPT-14	(50/1")	150.0-150.1 ft: Decomposing LIMESTONE mottled white (10YR 8/1) and very pale brown (10YR 2/2), platy, horizontal bedding, some recrystallization evident - white crystals - calcite?, fine to coarse gravel material and little fine to coarse sand size material	0.0 0.0
153-155	0	SPT-15	(50/1")			
160						

ch2m	PROJECT NUMBER 663222.02.05	BORING NUMBER CSB -3	SHEET 5 OF 5			
	SOIL BORING LOG					
PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation	LOCATION : Arecibo, PR					
WEATHER : Mostly Cloudy, 84°F, wind 7 mph ENE	DRILLING CONTRACTOR : ERTEC, driller: A. Claudio					
DRILLING METHOD AND EQUIPMENT USED : CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2' x 2" split spoon						
WATER LEVELS : --	START : 08/23/16 1000	END : 09/27/16	LOGGER : D. Whitaker			
DEPTH BELOW SURFACE (FT)	STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS			
INTERVAL (FT)	#/TYPE	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.			
6"-6"-6"	(N)		OVM (ppm): Breathing Zone Above Hole			
160	160-162	0.1	SPT-16	(50/1")	160.0-160.1 ft: Decomposing LIMESTONE, pink (5YR 8/3), platy, horizontal bedding, some recrystallization evident - white crystals - calcite?, fine to coarse gravel material and little fine to coarse sand size material	0.0 0.0
					Total Depth = 165 ft bgs	
170						
180						
190						
200						

PROJECT NUMBER
663222.02.05BORING NUMBER
CSB -4

SHEET 1 OF 6

SOIL BORING LOG

PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation**LOCATION :** Arecibo, PR**WEATHER :****DRILLING CONTRACTOR :** ERTEC, driller: A. Claudio**DRILLING METHOD AND EQUIPMENT USED :** CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2' x 2" split spoon**WATER LEVELS :** not encountered**START :** 09/13/16 0900**END :** 09/21/16 1430**LOGGER :** D. Whitaker

DEPTH BELOW SURFACE (FT)	STANDARD PENETRATION TEST RESULTS			SOIL DESCRIPTION	COMMENTS
	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	6"-6"-6"-6" (N)	
0					0.0-10.0 ft: SILT with CLAY, SAND with GRAVEL (ML) reddish yellow (7.5YR 6/6), silt and lean clay with fine sand and fine gravel (limestone, angular), moist, cohesive, medium plasticity
10	Continuous Drilling			N/A	10.0-20.0 ft: SILTY SAND with LEAN CLAY (SM) brown (7.5YR 5/4), silty poorly graded fine sand with little lean clay, cohesive, no to low plasticity, moist trace fine angular limestone gravel
20	Continuous Drilling			N/A	20.0-30.0 ft: SILTY/LEAN CLAY (CL) yellowish red (5YR 4/6) silt and lean clay, cohesive, medium plasticity, dry
30	Continuous Drilling			N/A	30.0-40.0 ft: SILTY/LEAN CLAY with SAND (CL) yellowish red (5YR 4/6) silt and lean clay, cohesive, low plasticity, dry
40	Continuous Drilling			N/A	

PROJECT NUMBER
663222.02.05BORING NUMBER
CSB -4

SHEET 2 OF 6

SOIL BORING LOG

PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation**LOCATION :** Arecibo, PR**WEATHER:****DRILLING CONTRACTOR :** ERTEC, driller: A. Claudio**DRILLING METHOD AND EQUIPMENT USED :** CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2" x 2" split spoon**WATER LEVELS :** not encountered**START :** 09/13/16 0900**END :** 09/21/16 1430**LOGGER :** D. Whitaker

DEPTH BELOW SURFACE (FT)	STANDARD PENETRATION TEST RESULTS			SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm): Breathing Zone Above Hole
	INTERVAL (FT)		#/TYPE		
	RECOVERY (FT)				
40				40.0-50.0 ft: SILT/LEAN CLAY (ML/CL) strong brown (7.5YR 4/4), moist, cohesive, medium plasticity, silt and lean clay, trace fine sand and angular fine limestone gravel and organics	
50	Continuous Drilling		N/A	50.0-60.0 ft: SILT/LEAN CLAY (ML/CL) strong brown (7.5YR 4/4), moist, cohesive, medium plasticity, silt and lean clay, trace fine sand and angular fine limestone gravel and organics	0.0
60	Continuous Drilling		N/A	60.0-70.0 ft: SILT with LEAN CLAY (ML) strong brown (7.5YR 4/4) moist, cohesive, low to medium plasticity, silt and lean clay, little fine sand and angular fine limestone gravel and organics	0.0
70	Continuous Drilling		N/A	60.0-70.0 ft: SILT with LEAN CLAY (ML) strong brown (7.5YR 4/4), moist, cohesive, low to medium plasticity, silt and lean clay, little fine sand and angular fine limestone gravel and organics, trace well graded white limestone sand	0.0
80	Continuous Drilling		N/A		0.0

Stop: 09/13/16

PROJECT NUMBER
663222.02.05BORING NUMBER
CSB -4

SHEET 3 OF 6

SOIL BORING LOG**PROJECT :** Pfizer Arecibo - SVE Performance Soil Boring Investigation**LOCATION :** Arecibo, PR**WEATHER:****DRILLING CONTRACTOR :** ERTEC, driller: A. Claudio**DRILLING METHOD AND EQUIPMENT USED :** CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2" x 2" split spoon**WATER LEVELS :** not encountered**START :** 09/13/16 0900**END :** 09/21/16 1430**LOGGER :** D. Whitaker

DEPTH BELOW SURFACE (FT)	STANDARD PENETRATION TEST RESULTS			SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS			
	INTERVAL (FT)		#/TYPE		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.	OVM (ppm): Breathing Zone Above Hole		
	RECOVERY (FT)	TEST RESULTS						
80	80-82	2.0	SPT-1	3-11-14-17 (25)	80.0-82.0 ft: SILT with LEAN CLAY (ML) strong brown (7.5YR 4/4), moist, cohesive, low to medium plasticity, silt and lean clay, little fine sand and angular fine limestone gravel and organics, trace well graded white limestone sand, trace black organics, very stiff	Start: 09/14/16 0.0 0.0		
					85.0-87.0 ft: SILT/LEAN CLAY with SAND (ML/CL) brown (7.5YR 4/4), very stiff, dry, cohesive, low to medium plasticity, silt and lean clay with little fine sand, little black organic material	0.3 0.3		
90	85-87	2.0	SPT-2	4-9-11-15 (20)				
	90-92	1.1	SPT-3	1-4-6-7 (10)	90.0-91.0 ft: SILT with LEAN CLAY and Little Fine SAND (ML) brown (7.5YR 4/4) trace black staining - organic?, cohesive, low plasticity, dry, stiff	0.9 0.0		
	95-97	2.0	SPT-4	7-9-13-15 (22)	95.0-97.0 ft: SILT with LEAN CLAY and Little Fine SAND (ML) brown (7.5YR 4/4), trace black staining - organic?, cohesive, low plasticity, dry, stiff	0.9 1.8		
100	95-97	2.0	SPT-5	10-6-11-13 (17)	100-102 ft: SANDY SILT with LEAN CLAY (ML) yellowish red (5YR 5/6), silt with fine sand and little lean clay, cohesive, low plasticity, dry, very stiff, chemical odor	105.8 64.3	*Collect soil sample CSB-4-1 @ 1120 short list VOCs	
	100-102	2.0	SPT-6	3-2-3-3 (5)	105-106 ft: SANDY SILT with LEAN CLAY (ML) yellowish red (5YR 5/6), silt with fine sand and little lean clay, cohesive, low plasticity, dry, very stiff, chemical odor	6.4 Stop: 09/14/16 Start: 09/15/16	0.0	
110	105-107	1.0	SPT-7	5-8-9-9 (17)	110-112: VOID except water in the hole?			
	110-112	VOID			112-114 ft: SANDY SILT with LEAN CLAY (ML) yellowish red (5YR 5/6), silt with fine sand and little lean clay, cohesive, low plasticity, dry, very stiff, chemical odor	4.2 3.9	0.0	
	112-114	1.2	SPT-8	4-6-8-9 (14)	115-116.3 ft: SANDY SILT with LEAN CLAY (ML) yellowish red (5YR 5/6), silt with fine sand and little lean clay, cohesive, low plasticity, dry, very stiff, chemical odor	0.6 0.8		
120	115-117	1.3					*Collect soil sample CSB-4-4 @ 0915 long list VOCs and MS/MSD	

PROJECT NUMBER
663222.02.05BORING NUMBER
CSB -4

SHEET 4 OF 6

SOIL BORING LOG

PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation				LOCATION : Arecibo, PR			
WEATHER :				DRILLING CONTRACTOR : ERTEC, driller: A. Claudio			
DRILLING METHOD AND EQUIPMENT USED : CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2' x 2" split spoon							
WATER LEVELS : not encountered		START : 09/13/16 0900		END : 09/21/16 1430		LOGGER : D. Whitaker	
DEPTH BELOW SURFACE (FT)		STANDARD PENETRATION TEST RESULTS		SOIL DESCRIPTION		COMMENTS	
INTERVAL (FT)		#/TYPE		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.	
6"-6"-6"-6" (N)						OVM (ppm): Breathing Zone Above Hole	
120	120-122	1.0	SPT-9	3-6-6-9 (12)	120.0-122.0 ft: SANDY SILT with LEAN CLAY (ML) yellowish red (5YR 5/6), silt with fine sand and little lean clay, cohesive, low plasticity, dry, stiff, chemical odor	1.6	0.0
	-	-	-	-	-	-	-
130	126-128	2.0	SPT-10	6-7-9-9 (16)	126.0-128.0 ft: SANDY SILT with LEAN CLAY (ML) yellowish red (5YR 5/6), silt with fine sand and little lean clay, cohesive, low plasticity, dry, very stiff, chemical odor	0.5	0.0
	130-132	1.0	SPT-11	3-4-6-5 (10)	130.0-131.0 ft: SANDY LEAN CLAY with SILT (CL) yellowish red (5YR 4/6), lean clay and fine sand with silt, moist, low to medium plasticity, stiff	2.3	0.0
140	135-137	2.0	SPT-12	5-9-8-13 (17)	135.0-137.0 ft: SANDY LEAN CLAY with SILT (CL) yellowish red (5YR 4/6), lean clay and fine sand with silt, moist, low to medium plasticity, very stiff	1.2	0.0
	140-142	2.0	SPT-13	4-9-13-15 (22)	140.0-142.0 ft: SANDY LEAN CLAY with SILT (CL) yellowish red (5YR 4/6), lean clay and fine sand with silt, moist, low to medium plasticity, very stiff	1.8	0.00
150	145-147	0.9	SPT-14	6-10-12-15 (22)	145.0-147.0 ft: SANDY LEAN CLAY with SILT (CL) yellowish red (5YR 4/6) to strong brown (7.5YR 4/6), lean clay and fine sand with silt, moist, low to medium plasticity, very stiff, trace chemical odor, trace black (organic?) material	1.8	0
	150-152	-	-	-	150.0-155.0 ft: VOID	-	-
160	155-157	0.5	SPT-15	2-4-19-14 (23)	155.0-155.5 ft: SILT (ML) decomposing limestone/silt, light reddish brown (2.5YR 7/4), silt with trace fine sand, cohesive, moist, very stiff	0.1	0
	-	-	-	-	-	*Collect soil sample CSB-4-8 @ 1515 for full list VOCs	-

PROJECT NUMBER
663222.02.05BORING NUMBER
CSB -4

SHEET 5 OF 6

SOIL BORING LOG

PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation

LOCATION : Arecibo, PR

WEATHER :

DRILLING CONTRACTOR : ERTEC, driller: A. Claudio

DRILLING METHOD AND EQUIPMENT USED : CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2" x 2" split spoon

WATER LEVELS : not encountered

START : 09/13/16 0900

END : 09/21/16 1430

LOGGER : D. Whitaker

DEPTH BELOW SURFACE (FT)		STANDARD PENETRATION TEST RESULTS		SOIL DESCRIPTION	COMMENTS	
INTERVAL (FT)	RECOVERY (FT)	#/TYPE	6"-6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.	
160	160-162			160.0-165.0 ft: VOID		
-						
-	165-167	0.7	SPT-16	165.5-165.7 ft: <u>LEAN CLAY (CL)</u> strong brown (7.5YR 4/6), lean clay, moist, medium plasticity, trace silt and fine sand, stiff	0.7	0.0
170	170-172	1.7	SPT-17	170-171.7 ft: <u>LEAN CLAY (CL)</u> strong brown (7.5YR 4/6), lean clay, moist, medium plasticity, little silt and fine sand, very stiff	0.3	0.0
-					0.2	
-	175-177	1.6	SPT-18	175.0-176.6 ft: <u>LEAN CLAY (CL)</u> mottled strong brown (7.5YR 4/6) and dark brown (7.5YR 3/2) with black staining/organic material?, lean clay, moist, medium plasticity, little silt and fine sand, very stiff	1.9	0.0
-					0.3	
180	180-182	2.0	SPT-19	180.0-182.0 ft: <u>LEAN CLAY/SILT (CL/ML)</u> black staining and strange chemical odor, strong brown (7.5YR 4/6), lean clay and silt, cohesive/low to medium plasticity, moist, little fine sand, stiff	no odor	
-					2.0	0.00
-	185-187	0.8	SPT-20	185.0-185.8 ft: <u>LEAN CLAY/SILT (CL/ML)</u> black staining and strange chemical odor, strong brown (7.5YR 4/6), lean clay and silt, cohesive/low to medium plasticity, moist, little fine sand, stiff		
-					1.9	
190	190-192	1.6	SPT-21	190.0-190.6 ft: <u>LEAN CLAY/SILT (CL/ML)</u> black staining and strange chemical odor, strong brown (7.5YR 4/6), lean clay and silt, cohesive/low to medium plasticity, saturated, little fine sand, medium stiff	5.2	
-					6.1	
-	197-199	1.0	SPT-22	195.0-197.0 ft: VOID		
-				197.0-198.0 ft: <u>SILT (ML)</u> with <u>LEAN CLAY (CL)</u> brown (7.5YR 4/4), saturated, soft, no to low plasticity, cohesive	*Collect soil sample CSB-4-20 @ 1325 and FD CSB-4b-20 @ 1330 for full list VOCs - 8260B	
200	199-201	1.5	SPT-23		6.9	
-					*Collect soil sample CSB-4-21 @ 1445 for short list VOCs	

PROJECT NUMBER
663222.02.05BORING NUMBER
CSB -4

SHEET 6 OF 6

SOIL BORING LOG

PROJECT : Pfizer Arecibo - SVE Performance Soil Boring Investigation**LOCATION :** Arecibo, PR**WEATHER :****DRILLING CONTRACTOR :** ERTEC, driller: A. Claudio**DRILLING METHOD AND EQUIPMENT USED :** CME-55 with 3.25" ID/ 6.63" OD augers, 140 lb hammer, 2' x 2" split spoon**WATER LEVELS :** not encountered**START :** 09/13/16 0900**END :** 09/21/16 1430**LOGGER :** D. Whitaker

DEPTH BELOW SURFACE (FT)	STANDARD PENETRATION TEST RESULTS			SOIL DESCRIPTION	COMMENTS	
	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	6"-6"-6" (N)		
200	199-201	1.5	SPT-23	(19)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
					199-200.5 ft: SILT with SAND (ML) strong brown (7.5YR 5/6) silt with ~40% fine sand, trace medium sand and lean clay, appears as decomposing limestone, cohesive, non-plastic, saturated, very stiff	OVM (ppm): Breathing Zone Above Hole
					Total Depth = 201 ft bgs	6.1
210	-	-	-	-	-	-
220	-	-	-	-	-	-
230	-	-	-	-	-	-
240	-	-	-	-	-	-

Attachment 2

Laboratory Analytical Data Packages



Lancaster Laboratories
Environmental

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Analysis Report

Page 1 of 5

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
P.O. Box 241329
Denver CO 80224

Report Date: August 31, 2016

Project: Pfizer Arecibo

Submittal Date: 08/30/2016
Group Number: 1701106
SDG: PFZ01
PO Number: 10381-7-115378
State of Sample Origin: PR

Client Sample Description

GSB-3-C Grab Soil
Pfizer Arecibo

Lancaster Labs # **Collected**
8555741 08/23/2016 16:15

METHODOLOGY

The specified methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices.

Our scopes of accreditation can be viewed at

<http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>

Electronic Copy To CH2M Hill, Inc.
Electronic Copy To CH2M Hill

Attn: Kristina Jones
Attn: Chemistry Mailbox

Partial Report

Page 2 of 5

CH2M Hill, Inc.
Project: Pfizer Arecibo
SDG: PFZ01

Report Date: 8/31/2016 14:16
Submit Date: 8/30/2016 9:20

Analysis Name	Trial	Units	8555741	
			GSB-3-C	Dry Result
Acetone		ug/kg		17 U 17
Carbon Tetrachloride		ug/kg		4 U 4
Chloroform		ug/kg		4 U 4
1,2-Dichloroethane		ug/kg		4 U 4
1,2-Dichloroethene (Total)		ug/kg		4 U 4
Methylene Chloride		ug/kg		4 U 4
Moisture		%		7.1 0.50

Partial Report

Laboratory Sample Analysis Record

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CAT No.	Analysis Name	Method	Trial ID	Batch	Analysis Date/Time	Analyst	Dilution
8555741	GSB-3-C Grab Soil						
10237	VOCs 8260B	SW-846 8260B	1	B162441AA	8/31/16 1144	Jennifer K Howe	0.79
00111	Moisture	SM 2540 G-1997	1	16243820006A	8/30/16 2105	Scott W Freisher	1

Partial Report

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Comments

8555741 GSB-3-C Grab Soil

00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Partial Report

Analysis Name	Trial	Units	Method	Cas Number	GSB-3-C	Dry Result	Dry LOQ
Acetone		ug/kg	SW-846 8260B	67-64-1	17	U	17
Carbon Tetrachloride		ug/kg	SW-846 8260B	56-23-5	4	U	4
Chloroform		ug/kg	SW-846 8260B	67-66-3	4	U	4
1,2-Dichloroethane		ug/kg	SW-846 8260B	107-06-2	4	U	4
1,2-Dichloroethene (Total)		ug/kg	SW-846 8260B	540-59-0	4	U	4
Methylene Chloride		ug/kg	SW-846 8260B	75-09-2	4	U	4
Moisture		%	SM 2540 G-1997	n.a.		7.1	0.50



Lancaster Laboratories
Environmental

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Analysis Report

Page 1 of 6

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
P.O. Box 241329
Denver CO 80224

Report Date: September 06, 2016

Project: Pfizer Arecibo

Submittal Date: 09/01/2016
Group Number: 1702467
SDG: PFZ02
PO Number: 10381-7-115378
State of Sample Origin: PR

Client Sample Description

	<u>Lancaster Labs #</u>	<u>Collected</u>
CSB-2-B Grab Soil	8562073	08/31/2016 09:25
Pfizer Arecibo		
CSB-2-2 Grab Soil	8562074	08/31/2016 14:10
Pfizer Arecibo		

METHODOLOGY

The specified methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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<http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>

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CH2M Hill, Inc.
CH2M Hill

Attn: Kristina Jones
Attn: Chemistry Mailbox

Partial Report

Page 2 of 6

CH2M Hill, Inc.
Project: Pfizer Arecibo
SDG: PFZ02

Report Date: 9/6/2016 15:26
Submit Date: 9/1/2016 9:20

Analysis Name	Trial	Units	8562073		8562074			
			CSB-2-B	Dry Result	Dry LOQ	CSB-2-2	Dry Result	Dry LOQ
Acetone		ug/kg		9 U	9		20	8
Carbon Tetrachloride		ug/kg		3 J	4	4 U		4
Chloroform		ug/kg		2 J	4	4 U		4
Methylene Chloride		ug/kg		4 U	4	4 U		4
Moisture		%		15.2	0.50		7.1	0.50

Partial Report

Laboratory Sample Analysis Record

Page 3 of 6

CAT No.	Analysis Name	Method	Trial ID	Batch	Analysis Date/Time	Analyst	Dilution
8562073 CSB-2-B Grab Soil							
10237	VOCs 8260B	SW-846 8260B	1	B162463AA	9/2/16 2103	Christopher G Torres Scott W Freisher	0.73
00111	Moisture	SM 2540 G-1997	1	16245820027A	9/1/16 2105		1
8562074 CSB-2-2 Grab Soil							
10237	VOCs 8260B	SW-846 8260B	1	B162463AA	9/2/16 2125	Christopher G Torres Scott W Freisher	0.72
00111	Moisture	SM 2540 G-1997	1	16245820027A	9/1/16 2105		1

Partial Report

Page 4 of 6

Comments

8562073 CSB-2-B Grab Soil

00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

8562074 CSB-2-2 Grab Soil

00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Partial Report

Analysis Name	Trial	Units	Method	Cas Number	8562073	CSB-2-B	Dry Result	Dry LOQ
Acetone		ug/kg	SW-846 8260B	67-64-1	9	U	9	
Carbon Tetrachloride		ug/kg	SW-846 8260B	56-23-5	3	J	4	
Chloroform		ug/kg	SW-846 8260B	67-66-3	2	J	4	
Methylene Chloride		ug/kg	SW-846 8260B	75-09-2	4	U	4	
Moisture		%	SM 2540 G-1997	n.a.	15.2		0.50	

Partial Report

8562074
CSB-2-2
Dry Result Dry LOQ

20	8	
4	U	4
4	U	4
4	U	4
7.1		0.50



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Analysis Report

Page 1 of 9

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
P.O. Box 241329
Denver CO 80224

Report Date: September 07, 2016

Project: Pfizer Arecibo

Submittal Date: 09/03/2016
Group Number: 1703358
SDG: PFZ03
PO Number: 10381-7-115378
State of Sample Origin: PR

Client Sample Description	Lancaster Labs #	Collected
CSB-2-4 Grab Soil	8566062	09/02/2016 10:45
Pfizer Arecibo		
CSB-26-4 Grab Soil	8566063	09/02/2016 10:50
Pfizer Arecibo		
CSB-2-6 Grab Soil	8566064	09/02/2016 11:10
Pfizer Arecibo		

METHODOLOGY

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Electronic Copy To CH2M Hill Attn: Chemistry Mailbox

Partial Report

Page 2 of 9

CH2M Hill, Inc.
Project: Pfizer Arecibo
SDG: PFZ03

Report Date: 9/7/2016 16:59
Submit Date: 9/3/2016 9:35

Analysis Name	Trial	Units	8566062		8566063		8566064	
			CSB-2-4	Dry Result	CSB-26-4	Dry Result	CSB-2-6	Dry Result
Acetone		ug/kg		9 U	9	6 J	8	16
Acetone	DL	ug/kg		n.a.	n.a.	420 U	420	n.a.
Benzene		ug/kg		4 U	4	4 U	4	n.a.
Benzene	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
Bromodichloromethane		ug/kg		4 U	4	4 U	4	n.a.
Bromodichloromethane	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
Bromoform		ug/kg		4 U	4	4 U	4	n.a.
Bromoform	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
Bromomethane		ug/kg		4 U	4	4 U	4	n.a.
Bromomethane	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
2-Butanone		ug/kg		9 U	9	8 U	8	n.a.
2-Butanone	DL	ug/kg		n.a.	n.a.	420 U	420	n.a.
Carbon Disulfide		ug/kg		4 U	4	4 U	4	n.a.
Carbon Disulfide	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
Carbon Tetrachloride		ug/kg		250	4	340 E	4	11
Carbon Tetrachloride	DL	ug/kg		n.a.	n.a.	230	210	n.a.
Chlorobenzene		ug/kg		4 U	4	4 U	4	n.a.
Chlorobenzene	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
Chloroethane		ug/kg		4 U	4	4 U	4	n.a.
Chloroethane	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
Chloroform		ug/kg		13	4	15	4	3 J
Chloroform	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
Chloromethane		ug/kg		4 U	4	4 U	4	n.a.
Chloromethane	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
Dibromochloromethane		ug/kg		4 U	4	4 U	4	n.a.
Dibromochloromethane	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
1,1-Dichloroethane		ug/kg		4 U	4	4 U	4	n.a.
1,1-Dichloroethane	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
1,2-Dichloroethane		ug/kg		4 U	4	4 U	4	n.a.
1,2-Dichloroethane	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
1,1-Dichloroethene		ug/kg		4 U	4	4 U	4	n.a.
1,1-Dichloroethene	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
1,2-Dichloroethene (Total)		ug/kg		4 U	4	4 U	4	n.a.
1,2-Dichloroethene (Total)	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
1,2-Dichloropropane		ug/kg		4 U	4	4 U	4	n.a.
1,2-Dichloropropane	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
cis-1,3-Dichloropropene		ug/kg		4 U	4	4 U	4	n.a.
cis-1,3-Dichloropropene	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
trans-1,3-Dichloropropene		ug/kg		4 U	4	4 U	4	n.a.
trans-1,3-Dichloropropene	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
Ethylbenzene		ug/kg		4 U	4	4 U	4	n.a.
Ethylbenzene	DL	ug/kg		n.a.	n.a.	210 U	210	n.a.
2-Hexanone		ug/kg		9 U	9	8 U	8	n.a.
2-Hexanone	DL	ug/kg		n.a.	n.a.	420 U	420	n.a.
4-Methyl-2-pentanone		ug/kg		9 U	9	8 U	8	n.a.

Partial Report

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CH2M Hill, Inc.
Project: Pfizer Arecibo
SDG: PFZ03

Report Date: 9/7/2016 16:59
Submit Date: 9/3/2016 9:35

4-Methyl-2-pentanone	DL	ug/kg	n.a.	n.a.	420	U	420	n.a.	n.a.
Methylene Chloride		ug/kg	4 U	4	4	U	4	4 U	4
Methylene Chloride	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
Styrene		ug/kg	4 U	4	4	U	4	n.a.	n.a.
Styrene	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
1,1,2,2-Tetrachloroethane		ug/kg	4 U	4	4	U	4	n.a.	n.a.
1,1,2,2-Tetrachloroethane	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
Tetrachloroethene		ug/kg	4 U	4	4	U	4	n.a.	n.a.
Tetrachloroethene	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
Toluene		ug/kg	4 U	4	4	U	4	n.a.	n.a.
Toluene	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
1,1,1-Trichloroethane		ug/kg	4 U	4	4	U	4	n.a.	n.a.
1,1,1-Trichloroethane	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
1,1,2-Trichloroethane		ug/kg	4 U	4	4	U	4	n.a.	n.a.
1,1,2-Trichloroethane	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
Trichloroethene		ug/kg	4 U	4	4	U	4	n.a.	n.a.
Trichloroethene	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
Vinyl Chloride		ug/kg	4 U	4	4	U	4	n.a.	n.a.
Vinyl Chloride	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
Xylene (Total)		ug/kg	4 U	4	4	U	4	n.a.	n.a.
Xylene (Total)	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
Moisture		%	14.3	0.50	11.4		0.50	5.9	0.50

Partial Report

Laboratory Sample Analysis Record

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CAT No.	Analysis Name	Method	Trial ID	Batch	Analysis Date/Time	Analyst	Dilution
8566062	CSB-2-4 Grab Soil						
10237	VOCs 8260B	SW-846 8260B	1	B162502AA	9/6/16 1355	Jennifer K Howe	0.76
00111	Moisture	SM 2540 G-1997	1	16250820004A	9/6/16 1517	Larry E Bevins	1
8566063	CSB-26-4 Grab Soil						
10237	VOCs 8260B	SW-846 8260B	1	B162502AA	9/6/16 1418	Jennifer K Howe	0.67
10237	VOCs 8260B	SW-846 8260B	2-DL	Q162512AA	9/7/16 1058	Anita M Dale	37.15
00111	Moisture	SM 2540 G-1997	1	16250820004A	9/6/16 1517	Larry E Bevins	1
8566064	CSB-2-6 Grab Soil						
10237	VOCs 8260B	SW-846 8260B	1	B162502AA	9/6/16 1441	Jennifer K Howe	0.81
00111	Moisture	SM 2540 G-1997	1	16250820004A	9/6/16 1517	Larry E Bevins	1

Partial Report

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Comments

8566062 CSB-2-4 Grab Soil

00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

8566063 CSB-26-4 Grab Soil

00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

8566064 CSB-2-6 Grab Soil

00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Partial Report

Analysis Name	Trial	Units	Method	Cas Number	8566062 CSB-2-4	Dry Result	Dry LOQ
Acetone		ug/kg	SW-846 8260B	67-64-1	9 U	9	
Acetone	DL	ug/kg	SW-846 8260B	67-64-1	n.a.	n.a.	
Benzene		ug/kg	SW-846 8260B	71-43-2	4 U	4	
Benzene	DL	ug/kg	SW-846 8260B	71-43-2	n.a.	n.a.	
Bromodichloromethane		ug/kg	SW-846 8260B	75-27-4	4 U	4	
Bromodichloromethane	DL	ug/kg	SW-846 8260B	75-27-4	n.a.	n.a.	
Bromoform		ug/kg	SW-846 8260B	75-25-2	4 U	4	
Bromoform	DL	ug/kg	SW-846 8260B	75-25-2	n.a.	n.a.	
Bromomethane		ug/kg	SW-846 8260B	74-83-9	4 U	4	
Bromomethane	DL	ug/kg	SW-846 8260B	74-83-9	n.a.	n.a.	
2-Butanone		ug/kg	SW-846 8260B	78-93-3	9 U	9	
2-Butanone	DL	ug/kg	SW-846 8260B	78-93-3	n.a.	n.a.	
Carbon Disulfide		ug/kg	SW-846 8260B	75-15-0	4 U	4	
Carbon Disulfide	DL	ug/kg	SW-846 8260B	75-15-0	n.a.	n.a.	
Carbon Tetrachloride		ug/kg	SW-846 8260B	56-23-5	250	4	
Carbon Tetrachloride	DL	ug/kg	SW-846 8260B	56-23-5	n.a.	n.a.	
Chlorobenzene		ug/kg	SW-846 8260B	108-90-7	4 U	4	
Chlorobenzene	DL	ug/kg	SW-846 8260B	108-90-7	n.a.	n.a.	
Chloroethane		ug/kg	SW-846 8260B	75-00-3	4 U	4	
Chloroethane	DL	ug/kg	SW-846 8260B	75-00-3	n.a.	n.a.	
Chloroform		ug/kg	SW-846 8260B	67-66-3	13	4	
Chloroform	DL	ug/kg	SW-846 8260B	67-66-3	n.a.	n.a.	
Chloromethane		ug/kg	SW-846 8260B	74-87-3	4 U	4	
Chloromethane	DL	ug/kg	SW-846 8260B	74-87-3	n.a.	n.a.	
Dibromochloromethane		ug/kg	SW-846 8260B	124-48-1	4 U	4	
Dibromochloromethane	DL	ug/kg	SW-846 8260B	124-48-1	n.a.	n.a.	
1,1-Dichloroethane		ug/kg	SW-846 8260B	75-34-3	4 U	4	
1,1-Dichloroethane	DL	ug/kg	SW-846 8260B	75-34-3	n.a.	n.a.	
1,2-Dichloroethane		ug/kg	SW-846 8260B	107-06-2	4 U	4	
1,2-Dichloroethane	DL	ug/kg	SW-846 8260B	107-06-2	n.a.	n.a.	
1,1-Dichloroethene		ug/kg	SW-846 8260B	75-35-4	4 U	4	
1,1-Dichloroethene	DL	ug/kg	SW-846 8260B	75-35-4	n.a.	n.a.	
1,2-Dichloroethene (Total)		ug/kg	SW-846 8260B	540-59-0	4 U	4	
1,2-Dichloroethene (Total)	DL	ug/kg	SW-846 8260B	540-59-0	n.a.	n.a.	
1,2-Dichloropropane		ug/kg	SW-846 8260B	78-87-5	4 U	4	
1,2-Dichloropropane	DL	ug/kg	SW-846 8260B	78-87-5	n.a.	n.a.	
cis-1,3-Dichloropropene		ug/kg	SW-846 8260B	10061-01-5	4 U	4	
cis-1,3-Dichloropropene	DL	ug/kg	SW-846 8260B	10061-01-5	n.a.	n.a.	
trans-1,3-Dichloropropene		ug/kg	SW-846 8260B	10061-02-6	4 U	4	
trans-1,3-Dichloropropene	DL	ug/kg	SW-846 8260B	10061-02-6	n.a.	n.a.	
Ethylbenzene		ug/kg	SW-846 8260B	100-41-4	4 U	4	
Ethylbenzene	DL	ug/kg	SW-846 8260B	100-41-4	n.a.	n.a.	
2-Hexanone		ug/kg	SW-846 8260B	591-78-6	9 U	9	
2-Hexanone	DL	ug/kg	SW-846 8260B	591-78-6	n.a.	n.a.	
4-Methyl-2-pentanone		ug/kg	SW-846 8260B	108-10-1	9 U	9	
4-Methyl-2-pentanone	DL	ug/kg	SW-846 8260B	108-10-1	n.a.	n.a.	
Methylene Chloride		ug/kg	SW-846 8260B	75-09-2	4 U	4	
Methylene Chloride	DL	ug/kg	SW-846 8260B	75-09-2	n.a.	n.a.	
Styrene		ug/kg	SW-846 8260B	100-42-5	4 U	4	
Styrene	DL	ug/kg	SW-846 8260B	100-42-5	n.a.	n.a.	
1,1,2,2-Tetrachloroethane		ug/kg	SW-846 8260B	79-34-5	4 U	4	
1,1,2,2-Tetrachloroethane	DL	ug/kg	SW-846 8260B	79-34-5	n.a.	n.a.	
Tetrachloroethene		ug/kg	SW-846 8260B	127-18-4	4 U	4	
Tetrachloroethene	DL	ug/kg	SW-846 8260B	127-18-4	n.a.	n.a.	
Toluene		ug/kg	SW-846 8260B	108-88-3	4 U	4	
Toluene	DL	ug/kg	SW-846 8260B	108-88-3	n.a.	n.a.	
1,1,1-Trichloroethane		ug/kg	SW-846 8260B	71-55-6	4 U	4	
1,1,1-Trichloroethane	DL	ug/kg	SW-846 8260B	71-55-6	n.a.	n.a.	
1,1,2-Trichloroethane		ug/kg	SW-846 8260B	79-00-5	4 U	4	
1,1,2-Trichloroethane	DL	ug/kg	SW-846 8260B	79-00-5	n.a.	n.a.	

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Trichloroethene	ug/kg	SW-846 8260B	79-01-6	4	U	4
Trichloroethene	DL	ug/kg	SW-846 8260B	79-01-6	n.a.	n.a.
Vinyl Chloride		ug/kg	SW-846 8260B	75-01-4	4	U
Vinyl Chloride	DL	ug/kg	SW-846 8260B	75-01-4	n.a.	n.a.
Xylene (Total)		ug/kg	SW-846 8260B	1330-20-7	4	U
Xylene (Total)	DL	ug/kg	SW-846 8260B	1330-20-7	n.a.	n.a.
Moisture		%	SM 2540 G-1997	n.a.	14.3	0.50

Partial Report

Partial Report

4	U	4	n.a.	n.a.
210	U	210	n.a.	n.a.
4	U	4	n.a.	n.a.
210	U	210	n.a.	n.a.
4	U	4	n.a.	n.a.
210	U	210	n.a.	n.a.
11.4		0.50	5.9	0.50



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Analysis Report

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
P.O. Box 241329
Denver CO 80224

Report Date: September 08, 2016

Project: Pfizer Arecibo

Submittal Date: 09/07/2016
Group Number: 1704066
SDG: PFZ04
PO Number: 10381-7-115378
State of Sample Origin: PR

Client Sample Description

	<u>Lancaster Labs #</u>	<u>Collected</u>
CSB-2-10 Grab Soil Pfizer Arecibo	8569096	09/06/2016 14:30
CSB-2-11 Grab Soil Pfizer Arecibo	8569097	09/06/2016 15:20

METHODOLOGY

The specified methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices.

Our scopes of accreditation can be viewed at

<http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>

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Partial Report

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CH2M Hill, Inc.
Project: Pfizer Arecibo
SDG: PFZ04

Report Date: 9/8/2016 19:26
Submit Date: 9/7/2016 9:55

Analysis Name	Trial	Units	8569096		8569097		
			CSB-2-10	Dry Result	Dry LOQ	CSB-2-11	Dry LOQ
Acetone		ug/kg		11	8	72	7
Carbon Tetrachloride		ug/kg		14	4	41	4
Chloroform		ug/kg		2 J	4	8	4
Methylene Chloride		ug/kg		4 U	4	U	4
Moisture		%		10.7	0.50	10.8	0.50

Partial Report

Laboratory Sample Analysis Record

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CAT No.	Analysis Name	Method	Trial ID	Batch	Analysis Date/Time	Analyst	Dilution
8569096 CSB-2-10 Grab Soil							
10237	VOCs 8260B	SW-846 8260B	1	B162512AA	9/7/16 1438	Jennifer K Howe	0.74
00111	Moisture	SM 2540 G-1997	1	16251820030B	9/7/16 2300	Scott W Freisher	1
8569097 CSB-2-11 Grab Soil							
10237	VOCs 8260B	SW-846 8260B	1	B162512AA	9/7/16 1501	Jennifer K Howe	0.65
00111	Moisture	SM 2540 G-1997	1	16251820030B	9/7/16 2300	Scott W Freisher	1

Partial Report

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Comments

8569096 CSB-2-10 Grab Soil

00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

8569097 CSB-2-11 Grab Soil

00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Partial Report

Analysis Name	Trial	Units	Method	Cas Number	8569096	CSB-2-10	Dry Result	Dry LOQ
Acetone		ug/kg	SW-846 8260B	67-64-1		11		8
Carbon Tetrachloride		ug/kg	SW-846 8260B	56-23-5		14		4
Chloroform		ug/kg	SW-846 8260B	67-66-3	2	J		4
Methylene Chloride		ug/kg	SW-846 8260B	75-09-2	4	U		4
Moisture		%	SM 2540 G-1997	n.a.		10.7		0.50

Partial Report

8569097

CSB-2-11

Dry Result Dry LOQ

72	7
41	4
8	4
4	4
10.8	0.50



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Analysis Report

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
P.O. Box 241329
Denver CO 80224

Report Date: September 13, 2016

Project: Pfizer Arecibo

Submittal Date: 09/09/2016
Group Number: 1705297
SDG: PFZ05
PO Number: 10381-7-115378
State of Sample Origin: PR

Client Sample Description

	<u>Lancaster Labs #</u>	<u>Collected</u>
CSB-2-12 Grab Soil	8574039	09/07/2016 08:50
Pfizer Arecibo		
CSB-2-14 Grab Soil	8574040	09/07/2016 11:55
Pfizer Arecibo		

METHODOLOGY

The specified methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Partial Report

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CH2M Hill, Inc.
Project: Pfizer Arecibo
SDG: PFZ05

Report Date: 9/13/2016 13:32
Submit Date: 9/9/2016 9:30

Analysis Name	Trial	Units	8574039		8574040	
			CSB-2-12	Dry Result	CSB-2-14	Dry Result
Acetone		ug/kg		1,000 E	9	53
Acetone	DL	ug/kg		390 U	390	n.a.
Benzene		ug/kg		5 U	5	n.a.
Benzene	DL	ug/kg		200 U	200	n.a.
Bromodichloromethane		ug/kg		5 U	5	n.a.
Bromodichloromethane	DL	ug/kg		200 U	200	n.a.
Bromoform		ug/kg		5 U	5	n.a.
Bromoform	DL	ug/kg		200 U	200	n.a.
Bromomethane		ug/kg		5 U	5	n.a.
Bromomethane	DL	ug/kg		200 U	200	n.a.
2-Butanone		ug/kg		9 U	9	n.a.
2-Butanone	DL	ug/kg		390 U	390	n.a.
Carbon Disulfide		ug/kg		5 U	5	n.a.
Carbon Disulfide	DL	ug/kg		200 U	200	n.a.
Carbon Tetrachloride		ug/kg		26	5	4 U
Carbon Tetrachloride	DL	ug/kg		72 J	200	n.a.
Chlorobenzene		ug/kg		5 U	5	n.a.
Chlorobenzene	DL	ug/kg		200 U	200	n.a.
Chloroethane		ug/kg		5 U	5	n.a.
Chloroethane	DL	ug/kg		200 U	200	n.a.
Chloroform		ug/kg		5 U	5	4 U
Chloroform	DL	ug/kg		200 U	200	n.a.
Chloromethane		ug/kg		5 U	5	n.a.
Chloromethane	DL	ug/kg		200 U	200	n.a.
Dibromochloromethane		ug/kg		5 U	5	n.a.
Dibromochloromethane	DL	ug/kg		200 U	200	n.a.
1,1-Dichloroethane		ug/kg		5 U	5	n.a.
1,1-Dichloroethane	DL	ug/kg		200 U	200	n.a.
1,2-Dichloroethane		ug/kg		5 U	5	n.a.
1,2-Dichloroethane	DL	ug/kg		200 U	200	n.a.
1,1-Dichloroethene		ug/kg		5 U	5	n.a.
1,1-Dichloroethene	DL	ug/kg		200 U	200	n.a.
1,2-Dichloroethene (Total)		ug/kg		5 U	5	n.a.
1,2-Dichloroethene (Total)	DL	ug/kg		200 U	200	n.a.
1,2-Dichloropropane		ug/kg		5 U	5	n.a.
1,2-Dichloropropane	DL	ug/kg		200 U	200	n.a.
cis-1,3-Dichloropropene		ug/kg		5 U	5	n.a.
cis-1,3-Dichloropropene	DL	ug/kg		200 U	200	n.a.
trans-1,3-Dichloropropene		ug/kg		5 U	5	n.a.
trans-1,3-Dichloropropene	DL	ug/kg		200 U	200	n.a.
Ethylbenzene		ug/kg		5 U	5	n.a.
Ethylbenzene	DL	ug/kg		200 U	200	n.a.
2-Hexanone		ug/kg		9 U	9	n.a.
2-Hexanone	DL	ug/kg		390 U	390	n.a.
4-Methyl-2-pentanone		ug/kg		9 U	9	n.a.

Partial Report

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CH2M Hill, Inc.
Project: Pfizer Arecibo
SDG: PFZ05

Report Date: 9/13/2016 13:32
Submit Date: 9/9/2016 9:30

4-Methyl-2-pentanone	DL	ug/kg	390	U	390	n.a.	n.a.
Methylene Chloride		ug/kg	5	U	5	4	4
Methylene Chloride	DL	ug/kg	200	U	200	n.a.	n.a.
Styrene		ug/kg	5	U	5	n.a.	n.a.
Styrene	DL	ug/kg	200	U	200	n.a.	n.a.
1,1,2,2-Tetrachloroethane		ug/kg	5	U	5	n.a.	n.a.
1,1,2,2-Tetrachloroethane	DL	ug/kg	200	U	200	n.a.	n.a.
Tetrachloroethene		ug/kg	5	U	5	n.a.	n.a.
Tetrachloroethene	DL	ug/kg	200	U	200	n.a.	n.a.
Toluene		ug/kg	5	U	5	n.a.	n.a.
Toluene	DL	ug/kg	200	U	200	n.a.	n.a.
1,1,1-Trichloroethane		ug/kg	5	U	5	n.a.	n.a.
1,1,1-Trichloroethane	DL	ug/kg	200	U	200	n.a.	n.a.
1,1,2-Trichloroethane		ug/kg	5	U	5	n.a.	n.a.
1,1,2-Trichloroethane	DL	ug/kg	200	U	200	n.a.	n.a.
Trichloroethene		ug/kg	5	U	5	n.a.	n.a.
Trichloroethene	DL	ug/kg	200	U	200	n.a.	n.a.
Vinyl Chloride		ug/kg	5	U	5	n.a.	n.a.
Vinyl Chloride	DL	ug/kg	200	U	200	n.a.	n.a.
Xylene (Total)		ug/kg	5	U	5	n.a.	n.a.
Xylene (Total)	DL	ug/kg	200	U	200	n.a.	n.a.
Moisture		%	9.5		0.50	7.4	0.50

Partial Report

Laboratory Sample Analysis Record

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CAT No.	Analysis Name	Method	Trial ID	Batch	Analysis Date/Time	Analyst	Dilution
8574039 CSB-2-12 Grab Soil							
10237	VOCs 8260B	SW-846 8260B	1	B162531AA	9/9/16 2006	Patrick T Herres	0.83
10237	VOCs 8260B	SW-846 8260B	2-DL	Q162563AA	9/12/16 1222	Anita M Dale	35.41
00111	Moisture	SM 2540 G-1997		1 16253820007A	9/9/16 1857	Scott W Freisher	1
8574040 CSB-2-14 Grab Soil							
10237	VOCs 8260B	SW-846 8260B	1	B162531AA	9/9/16 2029	Patrick T Herres	0.77
00111	Moisture	SM 2540 G-1997		1 16253820007A	9/9/16 1857	Scott W Freisher	1

Partial Report

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Comments

8574039 CSB-2-12 Grab Soil

- 00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.
- 10237 VOCs- Solid by 8260B
The concentration reported for acetone is estimated since it exceeds the calibration range of the instrument when determined by the low level method, but is less than the quantitation limit when determined by the high level method.
- The volatile preparation holding time was not met. The sample was submitted to the laboratory outside of the holding time. The client was notified and the data reported.

8574040 CSB-2-14 Grab Soil

- 00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Partial Report

Analysis Name	Trial	Units	Method	Cas Number 8574039			
				CSB-2-12		Dry Result	Dry LOQ
				Dry	Result		
Acetone		ug/kg	SW-846 8260B	67-64-1	1,000	E	9
Acetone	DL	ug/kg	SW-846 8260B	67-64-1	390	U	390
Benzene		ug/kg	SW-846 8260B	71-43-2	5	U	5
Benzene	DL	ug/kg	SW-846 8260B	71-43-2	200	U	200
Bromodichloromethane		ug/kg	SW-846 8260B	75-27-4	5	U	5
Bromodichloromethane	DL	ug/kg	SW-846 8260B	75-27-4	200	U	200
Bromoform		ug/kg	SW-846 8260B	75-25-2	5	U	5
Bromoform	DL	ug/kg	SW-846 8260B	75-25-2	200	U	200
Bromomethane		ug/kg	SW-846 8260B	74-83-9	5	U	5
Bromomethane	DL	ug/kg	SW-846 8260B	74-83-9	200	U	200
2-Butanone		ug/kg	SW-846 8260B	78-93-3	9	U	9
2-Butanone	DL	ug/kg	SW-846 8260B	78-93-3	390	U	390
Carbon Disulfide		ug/kg	SW-846 8260B	75-15-0	5	U	5
Carbon Disulfide	DL	ug/kg	SW-846 8260B	75-15-0	200	U	200
Carbon Tetrachloride		ug/kg	SW-846 8260B	56-23-5	26		5
Carbon Tetrachloride	DL	ug/kg	SW-846 8260B	56-23-5	72	J	200
Chlorobenzene		ug/kg	SW-846 8260B	108-90-7	5	U	5
Chlorobenzene	DL	ug/kg	SW-846 8260B	108-90-7	200	U	200
Chloroethane		ug/kg	SW-846 8260B	75-00-3	5	U	5
Chloroethane	DL	ug/kg	SW-846 8260B	75-00-3	200	U	200
Chloroform		ug/kg	SW-846 8260B	67-66-3	5		5
Chloroform	DL	ug/kg	SW-846 8260B	67-66-3	200	U	200
Chloromethane		ug/kg	SW-846 8260B	74-87-3	5	U	5
Chloromethane	DL	ug/kg	SW-846 8260B	74-87-3	200	U	200
Dibromochloromethane		ug/kg	SW-846 8260B	124-48-1	5	U	5
Dibromochloromethane	DL	ug/kg	SW-846 8260B	124-48-1	200	U	200
1,1-Dichloroethane		ug/kg	SW-846 8260B	75-34-3	5	U	5
1,1-Dichloroethane	DL	ug/kg	SW-846 8260B	75-34-3	200	U	200
1,2-Dichloroethane		ug/kg	SW-846 8260B	107-06-2	5	U	5
1,2-Dichloroethane	DL	ug/kg	SW-846 8260B	107-06-2	200	U	200
1,1-Dichloroethene		ug/kg	SW-846 8260B	75-35-4	5	U	5
1,1-Dichloroethene	DL	ug/kg	SW-846 8260B	75-35-4	200	U	200
1,2-Dichloroethene (Total)		ug/kg	SW-846 8260B	540-59-0	5	U	5
1,2-Dichloroethene (Total)	DL	ug/kg	SW-846 8260B	540-59-0	200	U	200
1,2-Dichloropropane		ug/kg	SW-846 8260B	78-87-5	5	U	5
1,2-Dichloropropane	DL	ug/kg	SW-846 8260B	78-87-5	200	U	200
cis-1,3-Dichloropropene		ug/kg	SW-846 8260B	10061-01-5	5	U	5
cis-1,3-Dichloropropene	DL	ug/kg	SW-846 8260B	10061-01-5	200	U	200
trans-1,3-Dichloropropene		ug/kg	SW-846 8260B	10061-02-6	5	U	5
trans-1,3-Dichloropropene	DL	ug/kg	SW-846 8260B	10061-02-6	200	U	200
Ethylbenzene		ug/kg	SW-846 8260B	100-41-4	5	U	5
Ethylbenzene	DL	ug/kg	SW-846 8260B	100-41-4	200	U	200
2-Hexanone		ug/kg	SW-846 8260B	591-78-6	9	U	9
2-Hexanone	DL	ug/kg	SW-846 8260B	591-78-6	390	U	390
4-Methyl-2-pentanone		ug/kg	SW-846 8260B	108-10-1	9	U	9
4-Methyl-2-pentanone	DL	ug/kg	SW-846 8260B	108-10-1	390	U	390
Methylene Chloride		ug/kg	SW-846 8260B	75-09-2	5	U	5
Methylene Chloride	DL	ug/kg	SW-846 8260B	75-09-2	200	U	200
Styrene		ug/kg	SW-846 8260B	100-42-5	5	U	5
Styrene	DL	ug/kg	SW-846 8260B	100-42-5	200	U	200
1,1,2,2-Tetrachloroethane		ug/kg	SW-846 8260B	79-34-5	5	U	5
1,1,2,2-Tetrachloroethane	DL	ug/kg	SW-846 8260B	79-34-5	200	U	200
Tetrachloroethene		ug/kg	SW-846 8260B	127-18-4	5	U	5
Tetrachloroethene	DL	ug/kg	SW-846 8260B	127-18-4	200	U	200
Toluene		ug/kg	SW-846 8260B	108-88-3	5	U	5
Toluene	DL	ug/kg	SW-846 8260B	108-88-3	200	U	200
1,1,1-Trichloroethane		ug/kg	SW-846 8260B	71-55-6	5	U	5
1,1,1-Trichloroethane	DL	ug/kg	SW-846 8260B	71-55-6	200	U	200
1,1,2-Trichloroethane		ug/kg	SW-846 8260B	79-00-5	5	U	5
1,1,2-Trichloroethane	DL	ug/kg	SW-846 8260B	79-00-5	200	U	200

Partial Report

Trichloroethene	ug/kg	SW-846 8260B	79-01-6	5	U	5	
Trichloroethene	DL	ug/kg	SW-846 8260B	79-01-6	200	U	200
Vinyl Chloride		ug/kg	SW-846 8260B	75-01-4	5	U	5
Vinyl Chloride	DL	ug/kg	SW-846 8260B	75-01-4	200	U	200
Xylene (Total)		ug/kg	SW-846 8260B	1330-20-7	5	U	5
Xylene (Total)	DL	ug/kg	SW-846 8260B	1330-20-7	200	U	200
Moisture		%	SM 2540 G-1997	n.a.	9.5		0.50

Partial Report

8574040
CSB-2-14
Dry Result Dry LOQ

Partial Report



Lancaster Laboratories
Environmental

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
P.O. Box 241329
Denver CO 80224

Report Date: September 13, 2016

Project: Pfizer Arecibo

Submittal Date: 09/09/2016
Group Number: 1705300
SDG: PFZ06
PO Number: 10381-7-115378
State of Sample Origin: PR

Client Sample Description

CSB-2-18 Grab Soil
Pfizer Arecibo

Lancaster Labs # **Collected**
8574046 09/08/2016 10:50

METHODOLOGY

The specified methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices.

Our scopes of accreditation can be viewed at

<http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>

Electronic Copy To
Electronic Copy To

CH2M Hill, Inc.
CH2M Hill

Attn: Kristina Jones
Attn: Chemistry Mailbox

Partial Report

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CH2M Hill, Inc.
Project: Pfizer Arecibo
SDG: PFZ06

Report Date: 9/13/2016 16:59
Submit Date: 9/9/2016 9:30

Analysis Name	Trial	Units	8574046	
			CSB-2-18	Dry Result
Acetone		ug/kg		17 10
Acetone	DL	ug/kg	2,600 U	2,600
Benzene		ug/kg	2 J	5
Benzene	DL	ug/kg	1,300 U	1,300
Bromodichloromethane		ug/kg	5 U	5
Bromodichloromethane	DL	ug/kg	1,300 U	1,300
Bromoform		ug/kg	5 U	5
Bromoform	DL	ug/kg	1,300 U	1,300
Bromomethane		ug/kg	5 U	5
Bromomethane	DL	ug/kg	1,300 U	1,300
2-Butanone		ug/kg	10 U	10
2-Butanone	DL	ug/kg	2,600 U	2,600
Carbon Disulfide		ug/kg	5 U	5
Carbon Disulfide	DL	ug/kg	1,300 U	1,300
Carbon Tetrachloride		ug/kg	5 U	5
Carbon Tetrachloride	DL	ug/kg	38,000	1,300
Chlorobenzene		ug/kg	5 U	5
Chlorobenzene	DL	ug/kg	1,300 U	1,300
Chloroethane		ug/kg	5 U	5
Chloroethane	DL	ug/kg	1,300 U	1,300
Chloroform		ug/kg	4,800 E	5
Chloroform	DL	ug/kg	1,700	1,300
Chloromethane		ug/kg	4 J	5
Chloromethane	DL	ug/kg	1,300 U	1,300
Dibromochloromethane		ug/kg	5 U	5
Dibromochloromethane	DL	ug/kg	1,300 U	1,300
1,1-Dichloroethane		ug/kg	5 U	5
1,1-Dichloroethane	DL	ug/kg	1,300 U	1,300
1,2-Dichloroethane		ug/kg	5 U	5
1,2-Dichloroethane	DL	ug/kg	1,300 U	1,300
1,1-Dichloroethene		ug/kg	2 J	5
1,1-Dichloroethene	DL	ug/kg	1,300 U	1,300
1,2-Dichloroethene (Total)		ug/kg	5 U	5
1,2-Dichloroethene (Total)	DL	ug/kg	1,300 U	1,300
1,2-Dichloropropane		ug/kg	5 U	5
1,2-Dichloropropane	DL	ug/kg	1,300 U	1,300
cis-1,3-Dichloropropene		ug/kg	5 U	5
cis-1,3-Dichloropropene	DL	ug/kg	1,300 U	1,300
trans-1,3-Dichloropropene		ug/kg	5 U	5
trans-1,3-Dichloropropene	DL	ug/kg	1,300 U	1,300
Ethylbenzene		ug/kg	11	5
Ethylbenzene	DL	ug/kg	1,500	1,300
2-Hexanone		ug/kg	10 U	10
2-Hexanone	DL	ug/kg	2,600 U	2,600
4-Methyl-2-pentanone		ug/kg	10 U	10

Partial Report

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CH2M Hill, Inc.
Project: Pfizer Arecibo
SDG: PFZ06

Report Date: 9/13/2016 16:59
Submit Date: 9/9/2016 9:30

4-Methyl-2-pentanone	DL	ug/kg	2,600	U	2,600
Methylene Chloride		ug/kg		32	5
Methylene Chloride	DL	ug/kg	1,300	U	1,300
Styrene		ug/kg	5	U	5
Styrene	DL	ug/kg	1,300	U	1,300
1,1,2,2-Tetrachloroethane		ug/kg	5	U	5
1,1,2,2-Tetrachloroethane	DL	ug/kg	1,300	U	1,300
Tetrachloroethene		ug/kg		51	5
Tetrachloroethene	DL	ug/kg	1,300	U	1,300
Toluene		ug/kg	5	U	5
Toluene	DL	ug/kg	1,300	U	1,300
1,1,1-Trichloroethane		ug/kg	5	U	5
1,1,1-Trichloroethane	DL	ug/kg	1,300	U	1,300
1,1,2-Trichloroethane		ug/kg	5	U	5
1,1,2-Trichloroethane	DL	ug/kg	1,300	U	1,300
Trichloroethene		ug/kg	4	J	5
Trichloroethene	DL	ug/kg	1,300	U	1,300
Vinyl Chloride		ug/kg	5	U	5
Vinyl Chloride	DL	ug/kg	1,300	U	1,300
Xylene (Total)		ug/kg		21	5
Xylene (Total)	DL	ug/kg	3,200		1,300
Moisture		%	31.2		0.50

Partial Report

Laboratory Sample Analysis Record

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CAT No.	Analysis Name	Method	Trial ID	Batch	Analysis Date/Time	Analyst	Dilution
8574046 CSB-2-18 Grab Soil							
10237	VOCs 8260B	SW-846 8260B	1	B162531AA	9/9/16 2051	Patrick T Herres	0.71
10237	VOCs 8260B	SW-846 8260B	2-DL	Q162563AA	9/12/16 1701	Anita M Dale	176.3
00111	Moisture	SM 2540 G-1997		1 16253820007A	9/9/16 1857	Scott W Freisher	1

Partial Report

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Comments

8574046 CSB-2-18 Grab Soil

00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Partial Report

Analysis Name	Trial	Units	Method	Cas Number	8574046	Dry Result	Dry LOQ		
				CSB-2-18					
Acetone		ug/kg	SW-846 8260B	67-64-1	17	10			
Acetone	DL	ug/kg	SW-846 8260B	67-64-1	2,600	U	2,600		
Benzene		ug/kg	SW-846 8260B	71-43-2	2	J	5		
Benzene	DL	ug/kg	SW-846 8260B	71-43-2	1,300	U	1,300		
Bromodichloromethane		ug/kg	SW-846 8260B	75-27-4	5	U	5		
Bromodichloromethane	DL	ug/kg	SW-846 8260B	75-27-4	1,300	U	1,300		
Bromoform		ug/kg	SW-846 8260B	75-25-2	5	U	5		
Bromoform	DL	ug/kg	SW-846 8260B	75-25-2	1,300	U	1,300		
Bromomethane		ug/kg	SW-846 8260B	74-83-9	5	U	5		
Bromomethane	DL	ug/kg	SW-846 8260B	74-83-9	1,300	U	1,300		
2-Butanone		ug/kg	SW-846 8260B	78-93-3	10	U	10		
2-Butanone	DL	ug/kg	SW-846 8260B	78-93-3	2,600	U	2,600		
Carbon Disulfide		ug/kg	SW-846 8260B	75-15-0	5	U	5		
Carbon Disulfide	DL	ug/kg	SW-846 8260B	75-15-0	1,300	U	1,300		
Carbon Tetrachloride		ug/kg	SW-846 8260B	56-23-5	5	U	5		
Carbon Tetrachloride	DL	ug/kg	SW-846 8260B	56-23-5	38,000		1,300		
Chlorobenzene		ug/kg	SW-846 8260B	108-90-7	5	U	5		
Chlorobenzene	DL	ug/kg	SW-846 8260B	108-90-7	1,300	U	1,300		
Chloroethane		ug/kg	SW-846 8260B	75-00-3	5	U	5		
Chloroethane	DL	ug/kg	SW-846 8260B	75-00-3	1,300	U	1,300		
Chloroform		ug/kg	SW-846 8260B	67-66-3	4,800	E	5		
Chloroform	DL	ug/kg	SW-846 8260B	67-66-3	1,700		1,300		
Chloromethane		ug/kg	SW-846 8260B	74-87-3	4	J	5		
Chloromethane	DL	ug/kg	SW-846 8260B	74-87-3	1,300	U	1,300		
Dibromochloromethane		ug/kg	SW-846 8260B	124-48-1	5	U	5		
Dibromochloromethane	DL	ug/kg	SW-846 8260B	124-48-1	1,300	U	1,300		
1,1-Dichloroethane		ug/kg	SW-846 8260B	75-34-3	5	U	5		
1,1-Dichloroethane	DL	ug/kg	SW-846 8260B	75-34-3	1,300	U	1,300		
1,2-Dichloroethane		ug/kg	SW-846 8260B	107-06-2	5	U	5		
1,2-Dichloroethane	DL	ug/kg	SW-846 8260B	107-06-2	1,300	U	1,300		
1,1-Dichloroethene		ug/kg	SW-846 8260B	75-35-4	2	J	5		
1,1-Dichloroethene	DL	ug/kg	SW-846 8260B	75-35-4	1,300	U	1,300		
1,2-Dichloroethene (Total)		ug/kg	SW-846 8260B	540-59-0	5	U	5		
1,2-Dichloroethene (Total)	DL	ug/kg	SW-846 8260B	540-59-0	1,300	U	1,300		
1,2-Dichloropropane		ug/kg	SW-846 8260B	78-87-5	5	U	5		
1,2-Dichloropropane	DL	ug/kg	SW-846 8260B	78-87-5	1,300	U	1,300		
cis-1,3-Dichloropropene		ug/kg	SW-846 8260B	10061-01-5	5	U	5		
cis-1,3-Dichloropropene	DL	ug/kg	SW-846 8260B	10061-01-5	1,300	U	1,300		
trans-1,3-Dichloropropene		ug/kg	SW-846 8260B	10061-02-6	5	U	5		
trans-1,3-Dichloropropene	DL	ug/kg	SW-846 8260B	10061-02-6	1,300	U	1,300		
Ethylbenzene		ug/kg	SW-846 8260B	100-41-4	11		5		
Ethylbenzene	DL	ug/kg	SW-846 8260B	100-41-4	1,500		1,300		
2-Hexanone		ug/kg	SW-846 8260B	591-78-6	10	U	10		
2-Hexanone	DL	ug/kg	SW-846 8260B	591-78-6	2,600	U	2,600		
4-Methyl-2-pentanone		ug/kg	SW-846 8260B	108-10-1	10	U	10		
4-Methyl-2-pentanone	DL	ug/kg	SW-846 8260B	108-10-1	2,600	U	2,600		
Methylene Chloride		ug/kg	SW-846 8260B	75-09-2	32		5		
Methylene Chloride	DL	ug/kg	SW-846 8260B	75-09-2	1,300	U	1,300		
Styrene		ug/kg	SW-846 8260B	100-42-5	5	U	5		
Styrene	DL	ug/kg	SW-846 8260B	100-42-5	1,300	U	1,300		
1,1,2,2-Tetrachloroethane		ug/kg	SW-846 8260B	79-34-5	5	U	5		
1,1,2,2-Tetrachloroethane	DL	ug/kg	SW-846 8260B	79-34-5	1,300	U	1,300		
Tetrachloroethene		ug/kg	SW-846 8260B	127-18-4	51		5		
Tetrachloroethene	DL	ug/kg	SW-846 8260B	127-18-4	1,300	U	1,300		
Toluene		ug/kg	SW-846 8260B	108-88-3	5	U	5		
Toluene	DL	ug/kg	SW-846 8260B	108-88-3	1,300	U	1,300		
1,1,1-Trichloroethane		ug/kg	SW-846 8260B	71-55-6	5	U	5		
1,1,1-Trichloroethane	DL	ug/kg	SW-846 8260B	71-55-6	1,300	U	1,300		
1,1,2-Trichloroethane		ug/kg	SW-846 8260B	79-00-5	5	U	5		
1,1,2-Trichloroethane	DL	ug/kg	SW-846 8260B	79-00-5	1,300	U	1,300		

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Trichloroethene	ug/kg	SW-846 8260B	79-01-6	4	J	5
Trichloroethene	DL	ug/kg	SW-846 8260B	79-01-6	1,300	U
Vinyl Chloride		ug/kg	SW-846 8260B	75-01-4	5	U
Vinyl Chloride	DL	ug/kg	SW-846 8260B	75-01-4	1,300	U
Xylene (Total)		ug/kg	SW-846 8260B	1330-20-7	21	5
Xylene (Total)	DL	ug/kg	SW-846 8260B	1330-20-7	3,200	1,300
Moisture		%	SM 2540 G-1997	n.a.	31.2	0.50



Lancaster Laboratories
Environmental

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
P.O. Box 241329
Denver CO 80224

Report Date: September 22, 2016

Project: Pfizer Arecibo

Submittal Date: 09/16/2016
Group Number: 1708409
SDG: PFZ07
PO Number: 10381-7-115378
State of Sample Origin: PR

<u>Client Sample Description</u>	<u>Lancaster Labs #</u>	<u>Collected</u>
CSB-4-1 Grab Soil	8587053	09/14/2016 11:20
Pfizer Arecibo		
CSB-4-4 Grab Soil	8587056	09/15/2016 09:15
Pfizer Arecibo		
CSB-4-4 MS Grab Soil	8587057	09/15/2016 09:15
Pfizer Arecibo		
CSB-4-4 MSD Grab Soil	8587058	09/15/2016 09:15
Pfizer Arecibo		
CSB-4-8 Grab Soil	8587059	09/15/2016 15:15
Pfizer Arecibo		

METHODOLOGY

The specified methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices.

Our current scopes of accreditation can be viewed at

<http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>

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CH2M Hill, Inc.
CH2M Hill

Attn: Kristina Jones
Attn: Chemistry Mailbox

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CH2M Hill, Inc.
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Analysis Name	Trial	Units	CSB-4-1		CSB-4-4		CSB-4-4 MS	
			Dry Result	Dry LOQ	Dry Result	Dry LOQ	Dry Result	Dry LOQ
Acetone		ug/kg	41,000	U	41,000	8	100	8
			810,000					
Acetone	DL	ug/kg	U	810,000	410	U	410	n.a.
Benzene		ug/kg	n.a.	n.a.	4	U	4	14
Benzene	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.
Bromodichloromethane		ug/kg	n.a.	n.a.	4	U	4	15
Bromodichloromethane	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.
Bromoform		ug/kg	n.a.	n.a.	4	U	4	14
Bromoform	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.
Bromomethane		ug/kg	n.a.	n.a.	4	U	4	15
Bromomethane	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.
2-Butanone		ug/kg	n.a.	n.a.	8	U	8	120
2-Butanone	DL	ug/kg	n.a.	n.a.	410	U	410	n.a.
Carbon Disulfide		ug/kg	n.a.	n.a.	4	U	4	11
Carbon Disulfide	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.
			11,000,000					
Carbon Tetrachloride		ug/kg	E	20,000	3,000	E	4	2,900
Carbon Tetrachloride	DL	ug/kg	17,000,000	410,000	2,100		210	n.a.
Chlorobenzene		ug/kg	n.a.	n.a.	4	U	4	14
Chlorobenzene	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.
Chloroethane		ug/kg	n.a.	n.a.	4	U	4	14
Chloroethane	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.
Chloroform		ug/kg	9,000	J	20,000	1,100	E	4
			410,000				1,000	E
Chloroform	DL	ug/kg	U	410,000	860		210	n.a.
Chloromethane		ug/kg	n.a.	n.a.	4	U	4	15
Chloromethane	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.
Dibromochloromethane		ug/kg	n.a.	n.a.	4	U	4	15
Dibromochloromethane	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.
1,1-Dichloroethane		ug/kg	n.a.	n.a.	4	U	4	14
1,1-Dichloroethane	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.
1,2-Dichloroethane		ug/kg	n.a.	n.a.	4	U	4	16
1,2-Dichloroethane	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.
1,2-Dichloroethane		ug/kg	n.a.	n.a.	4	U	4	15
1,1-Dichloroethene		ug/kg	n.a.	n.a.	210	U	210	n.a.
1,1-Dichloroethene	DL	ug/kg	n.a.	n.a.	4	U	4	29
1,2-Dichloroethene (Total)		ug/kg	n.a.	n.a.	4	U	4	4
1,2-Dichloroethene (Total)	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.
1,2-Dichloropropane		ug/kg	n.a.	n.a.	4	U	4	14
1,2-Dichloropropane	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.
cis-1,3-Dichloropropene		ug/kg	n.a.	n.a.	4	U	4	14
cis-1,3-Dichloropropene	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.
trans-1,3-Dichloropropene		ug/kg	n.a.	n.a.	4	U	4	14
trans-1,3-Dichloropropene	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.
Ethylbenzene		ug/kg	n.a.	n.a.	4	U	4	15

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Ethylbenzene	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
2-Hexanone		ug/kg	n.a.	n.a.	8	U	8	84	8
2-Hexanone	DL	ug/kg	n.a.	n.a.	410	U	410	n.a.	n.a.
4-Methyl-2-pentanone		ug/kg	n.a.	n.a.	8	U	8	76	8
4-Methyl-2-pentanone	DL	ug/kg	n.a.	n.a.	410	U	410	n.a.	n.a.
Methylene Chloride		ug/kg	20,000	U	20,000		7	4	20
					410,000				4
Methylene Chloride	DL	ug/kg	U	410,000	210	U	210	n.a.	n.a.
Styrene		ug/kg	n.a.	n.a.	4	U	4	14	4
Styrene	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
1,1,2,2-Tetrachloroethane		ug/kg	n.a.	n.a.	4	U	4	14	4
1,1,2,2-Tetrachloroethane	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
Tetrachloroethene		ug/kg	n.a.	n.a.	5		4	21	4
Tetrachloroethene	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
Toluene		ug/kg	n.a.	n.a.	4	U	4	14	4
Toluene	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
1,1,1-Trichloroethane		ug/kg	n.a.	n.a.	4	U	4	14	4
1,1,1-Trichloroethane	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
1,1,2-Trichloroethane		ug/kg	n.a.	n.a.	4	U	4	14	4
1,1,2-Trichloroethane	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
Trichloroethene		ug/kg	n.a.	n.a.	1	J	4	16	4
Trichloroethene	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
Vinyl Chloride		ug/kg	n.a.	n.a.	4	U	4	15	4
Vinyl Chloride	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
Xylene (Total)		ug/kg	n.a.	n.a.	4	U	4	43	4
Xylene (Total)	DL	ug/kg	n.a.	n.a.	210	U	210	n.a.	n.a.
Moisture	%		15.7	0.50	15.3		0.50	n.a.	n.a.
Moisture	%		n.a.	n.a.	n.a.		n.a.	15.3	0.50
Moisture Duplicate	%		n.a.	n.a.	n.a.		n.a.	n.a.	n.a.

8587058
CSB-4-4

8587059

Analysis Name	Trial	Units	MSD		CSB-4-8	
			Dry Result	Dry LOQ	Dry Result	Dry LOQ
Acetone		ug/kg	120	8	29	9
Acetone	DL	ug/kg	n.a.	n.a.	910	U
Benzene		ug/kg	17	4	0.5	J
Benzene	DL	ug/kg	n.a.	n.a.	450	U
Bromodichloromethane		ug/kg	17	4	4	U
Bromodichloromethane	DL	ug/kg	n.a.	n.a.	450	U
Bromoform		ug/kg	15	4	4	U
Bromoform	DL	ug/kg	n.a.	n.a.	450	U
Bromomethane		ug/kg	17	4	4	U
Bromomethane	DL	ug/kg	n.a.	n.a.	450	U
2-Butanone		ug/kg	150	8	9	U
2-Butanone	DL	ug/kg	n.a.	n.a.	910	U
Carbon Disulfide		ug/kg	13	4	4	U
Carbon Disulfide	DL	ug/kg	n.a.	n.a.	450	U
Carbon Tetrachloride		ug/kg	3,200	E	4	8,800
					E	4

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Carbon Tetrachloride	DL	ug/kg	n.a.	n.a.	13,000	450
Chlorobenzene		ug/kg	17	4	4 U	4
Chlorobenzene	DL	ug/kg	n.a.	n.a.	450 U	450
Chloroethane		ug/kg	17	4	4 U	4
Chloroethane	DL	ug/kg	n.a.	n.a.	450 U	450
Chloroform		ug/kg	1,100	E	4 2,100 E	4
Chloroform	DL	ug/kg	n.a.	n.a.	2,000	450
Chloromethane		ug/kg	17	4	2 J	4
Chloromethane	DL	ug/kg	n.a.	n.a.	450 U	450
Dibromochloromethane		ug/kg	16	4	4 U	4
Dibromochloromethane	DL	ug/kg	n.a.	n.a.	450 U	450
1,1-Dichloroethane		ug/kg	17	4	4 U	4
1,1-Dichloroethane	DL	ug/kg	n.a.	n.a.	450 U	450
1,2-Dichloroethane		ug/kg	18	4	4 U	4
1,2-Dichloroethane	DL	ug/kg	n.a.	n.a.	450 U	450
1,1-Dichloroethene		ug/kg	17	4	1 J	4
1,1-Dichloroethene	DL	ug/kg	n.a.	n.a.	450 U	450
1,2-Dichloroethene (Total)		ug/kg	33	4	4 U	4
1,2-Dichloroethene (Total)	DL	ug/kg	n.a.	n.a.	450 U	450
1,2-Dichloropropane		ug/kg	17	4	4 U	4
1,2-Dichloropropane	DL	ug/kg	n.a.	n.a.	450 U	450
cis-1,3-Dichloropropene		ug/kg	16	4	4 U	4
cis-1,3-Dichloropropene	DL	ug/kg	n.a.	n.a.	450 U	450
trans-1,3-Dichloropropene		ug/kg	16	4	4 U	4
trans-1,3-Dichloropropene	DL	ug/kg	n.a.	n.a.	450 U	450
Ethylbenzene		ug/kg	17	4	1 J	4
Ethylbenzene	DL	ug/kg	n.a.	n.a.	450 U	450
2-Hexanone		ug/kg	96	8	9 U	9
2-Hexanone	DL	ug/kg	n.a.	n.a.	910 U	910
4-Methyl-2-pentanone		ug/kg	82	8	9 U	9
4-Methyl-2-pentanone	DL	ug/kg	n.a.	n.a.	910 U	910
Methylene Chloride		ug/kg	22	4	62	4
Methylene Chloride	DL	ug/kg	n.a.	n.a.	450 U	450
Styrene		ug/kg	16	4	4 U	4
Styrene	DL	ug/kg	n.a.	n.a.	450 U	450
1,1,2,2-Tetrachloroethane		ug/kg	16	4	4 U	4
1,1,2,2-Tetrachloroethane	DL	ug/kg	n.a.	n.a.	450 U	450
Tetrachloroethene		ug/kg	24	4	11	4
Tetrachloroethene	DL	ug/kg	n.a.	n.a.	450 U	450
Toluene		ug/kg	17	4	4 U	4
Toluene	DL	ug/kg	n.a.	n.a.	450 U	450
1,1,1-Trichloroethane		ug/kg	15	4	4 U	4
1,1,1-Trichloroethane	DL	ug/kg	n.a.	n.a.	450 U	450
1,1,2-Trichloroethane		ug/kg	16	4	4 U	4
1,1,2-Trichloroethane	DL	ug/kg	n.a.	n.a.	450 U	450
Trichloroethene		ug/kg	19	4	2 J	4
Trichloroethene	DL	ug/kg	n.a.	n.a.	450 U	450
Vinyl Chloride		ug/kg	17	4	4 U	4
Vinyl Chloride	DL	ug/kg	n.a.	n.a.	450 U	450

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Xylene (Total)	ug/kg	51	4	5	4
Xylene (Total)	DL ug/kg	n.a.	n.a.	450 U	450
Moisture	%	n.a.	n.a.	18.3	0.50
Moisture	%	15.3	0.50	n.a.	n.a.
Moisture Duplicate	%	15.2	0.50	n.a.	n.a.

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Laboratory Sample Analysis Record

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CAT No.	Analysis Name	Method	Trial ID	Batch	Analysis Date/Time	Analyst	Dilution
8587053 CSB-4-1 Grab Soil							
10237	VOCs 8260B	SW-846 8260B		1 Q162641AA	9/20/16 1245	Angela D Sneeringer	3419.97
10237	VOCs 8260B	SW-846 8260B	2-DL	Q162641AA	9/20/16 1329	Angela D Sneeringer	68399.5
00111	Moisture	SM 2540 G-1997		1 16266820001A	9/22/16 0654	Stephanie A Sanchez	1
8587056 CSB-4-4 Grab Soil							
10237	VOCs 8260B	SW-846 8260B		1 B162621AA	9/18/16 1229	Angela D Sneeringer	0.71
10237	VOCs 8260B	SW-846 8260B	2-DL	Q162631AA	9/19/16 1122	Jennifer K Howe	35.01
00111	Moisture	SM 2540 G-1997		1 16260820003B	9/16/16 2024	Scott W Freisher	1
8587057 CSB-4-4 MS Grab Soil							
10237	VOCs 8260B	SW-846 8260B		1 B162621AA	9/18/16 1252	Angela D Sneeringer	0.71
00118	Moisture	SM 2540 G-1997		1 16260820003B	9/16/16 2024	Scott W Freisher	1
8587058 CSB-4-4 MSD Grab Soil							
10237	VOCs 8260B	SW-846 8260B		1 B162621AA	9/18/16 1314	Angela D Sneeringer	0.71
00118	Moisture	SM 2540 G-1997		1 16260820003B	9/16/16 2024	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997		1 16260820003B	9/16/16 2024	Scott W Freisher	1
8587059 CSB-4-8 Grab Soil							
10237	VOCs 8260B	SW-846 8260B		1 B162621AA	9/18/16 1336	Angela D Sneeringer	0.73
10237	VOCs 8260B	SW-846 8260B	2-DL	Q162631AA	9/19/16 1144	Jennifer K Howe	74.29
00111	Moisture	SM 2540 G-1997		1 16260820003B	9/16/16 2024	Scott W Freisher	1

Partial Report

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Comments

8587053 CSB-4-1 Grab Soil

- 00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

8587056 CSB-4-4 Grab Soil

- 00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

8587057 CSB-4-4 MS Grab Soil

8587058 CSB-4-4 MSD Grab Soil

- 00121 Moisture Duplicate
The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

8587059 CSB-4-8 Grab Soil

- 00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Partial Report

Analysis Name	Trial	Units	Method	Cas Number	8587053 CSB-4-1	Dry Result	Dry LOQ
Acetone		ug/kg	SW-846 8260B	67-64-1	41,000	U	41,000
					810,000		
Acetone	DL	ug/kg	SW-846 8260B	67-64-1		U	810,000
Benzene		ug/kg	SW-846 8260B	71-43-2	n.a.	n.a.	
Benzene	DL	ug/kg	SW-846 8260B	71-43-2	n.a.	n.a.	
Bromodichloromethane		ug/kg	SW-846 8260B	75-27-4	n.a.	n.a.	
Bromodichloromethane	DL	ug/kg	SW-846 8260B	75-27-4	n.a.	n.a.	
Bromoform		ug/kg	SW-846 8260B	75-25-2	n.a.	n.a.	
Bromoform	DL	ug/kg	SW-846 8260B	75-25-2	n.a.	n.a.	
Bromomethane		ug/kg	SW-846 8260B	74-83-9	n.a.	n.a.	
Bromomethane	DL	ug/kg	SW-846 8260B	74-83-9	n.a.	n.a.	
2-Butanone		ug/kg	SW-846 8260B	78-93-3	n.a.	n.a.	
2-Butanone	DL	ug/kg	SW-846 8260B	78-93-3	n.a.	n.a.	
Carbon Disulfide		ug/kg	SW-846 8260B	75-15-0	n.a.	n.a.	
Carbon Disulfide	DL	ug/kg	SW-846 8260B	75-15-0	n.a.	n.a.	
					11,000,000		
Carbon Tetrachloride		ug/kg	SW-846 8260B	56-23-5		E	20,000
Carbon Tetrachloride	DL	ug/kg	SW-846 8260B	56-23-5	17,000,000	410,000	
Chlorobenzene		ug/kg	SW-846 8260B	108-90-7	n.a.	n.a.	
Chlorobenzene	DL	ug/kg	SW-846 8260B	108-90-7	n.a.	n.a.	
Chloroethane		ug/kg	SW-846 8260B	75-00-3	n.a.	n.a.	
Chloroethane	DL	ug/kg	SW-846 8260B	75-00-3	n.a.	n.a.	
Chloroform		ug/kg	SW-846 8260B	67-66-3	9,000	J	20,000
					410,000		
Chloroform	DL	ug/kg	SW-846 8260B	67-66-3		U	410,000
Chloromethane		ug/kg	SW-846 8260B	74-87-3	n.a.	n.a.	
Chloromethane	DL	ug/kg	SW-846 8260B	74-87-3	n.a.	n.a.	
Dibromochloromethane		ug/kg	SW-846 8260B	124-48-1	n.a.	n.a.	
Dibromochloromethane	DL	ug/kg	SW-846 8260B	124-48-1	n.a.	n.a.	
1,1-Dichloroethane		ug/kg	SW-846 8260B	75-34-3	n.a.	n.a.	
1,1-Dichloroethane	DL	ug/kg	SW-846 8260B	75-34-3	n.a.	n.a.	
1,2-Dichloroethane		ug/kg	SW-846 8260B	107-06-2	n.a.	n.a.	
1,2-Dichloroethane	DL	ug/kg	SW-846 8260B	107-06-2	n.a.	n.a.	
1,1-Dichloroethene		ug/kg	SW-846 8260B	75-35-4	n.a.	n.a.	
1,1-Dichloroethene	DL	ug/kg	SW-846 8260B	75-35-4	n.a.	n.a.	
1,2-Dichloroethene (Total)		ug/kg	SW-846 8260B	540-59-0	n.a.	n.a.	
1,2-Dichloroethene (Total)	DL	ug/kg	SW-846 8260B	540-59-0	n.a.	n.a.	
1,2-Dichloropropane		ug/kg	SW-846 8260B	78-87-5	n.a.	n.a.	
1,2-Dichloropropane	DL	ug/kg	SW-846 8260B	78-87-5	n.a.	n.a.	
cis-1,3-Dichloropropene		ug/kg	SW-846 8260B	10061-01-5	n.a.	n.a.	
cis-1,3-Dichloropropene	DL	ug/kg	SW-846 8260B	10061-01-5	n.a.	n.a.	
trans-1,3-Dichloropropene		ug/kg	SW-846 8260B	10061-02-6	n.a.	n.a.	
trans-1,3-Dichloropropene	DL	ug/kg	SW-846 8260B	10061-02-6	n.a.	n.a.	
Ethylbenzene		ug/kg	SW-846 8260B	100-41-4	n.a.	n.a.	
Ethylbenzene	DL	ug/kg	SW-846 8260B	100-41-4	n.a.	n.a.	
2-Hexanone		ug/kg	SW-846 8260B	591-78-6	n.a.	n.a.	
2-Hexanone	DL	ug/kg	SW-846 8260B	591-78-6	n.a.	n.a.	
4-Methyl-2-pentanone		ug/kg	SW-846 8260B	108-10-1	n.a.	n.a.	
4-Methyl-2-pentanone	DL	ug/kg	SW-846 8260B	108-10-1	n.a.	n.a.	
Methylene Chloride		ug/kg	SW-846 8260B	75-09-2	20,000	U	20,000
					410,000		
Methylene Chloride	DL	ug/kg	SW-846 8260B	75-09-2		U	410,000
Styrene		ug/kg	SW-846 8260B	100-42-5	n.a.	n.a.	
Styrene	DL	ug/kg	SW-846 8260B	100-42-5	n.a.	n.a.	
1,1,2,2-Tetrachloroethane		ug/kg	SW-846 8260B	79-34-5	n.a.	n.a.	
1,1,2,2-Tetrachloroethane	DL	ug/kg	SW-846 8260B	79-34-5	n.a.	n.a.	
Tetrachloroethene		ug/kg	SW-846 8260B	127-18-4	n.a.	n.a.	
Tetrachloroethene	DL	ug/kg	SW-846 8260B	127-18-4	n.a.	n.a.	
Toluene		ug/kg	SW-846 8260B	108-88-3	n.a.	n.a.	
Toluene	DL	ug/kg	SW-846 8260B	108-88-3	n.a.	n.a.	

Partial Report

1,1,1-Trichloroethane	ug/kg	SW-846 8260B	71-55-6	n.a.	n.a.
1,1,1-Trichloroethane	DL	ug/kg	SW-846 8260B	71-55-6	n.a.
1,1,2-Trichloroethane		ug/kg	SW-846 8260B	79-00-5	n.a.
1,1,2-Trichloroethane	DL	ug/kg	SW-846 8260B	79-00-5	n.a.
Trichloroethene		ug/kg	SW-846 8260B	79-01-6	n.a.
Trichloroethene	DL	ug/kg	SW-846 8260B	79-01-6	n.a.
Vinyl Chloride		ug/kg	SW-846 8260B	75-01-4	n.a.
Vinyl Chloride	DL	ug/kg	SW-846 8260B	75-01-4	n.a.
Xylene (Total)		ug/kg	SW-846 8260B	1330-20-7	n.a.
Xylene (Total)	DL	ug/kg	SW-846 8260B	1330-20-7	n.a.
Moisture	%		SM 2540 G-1997	n.a.	15.7
Moisture	%		SM 2540 G-1997	n.a.	n.a.
Moisture Duplicate	%		SM 2540 G-1997	n.a.	n.a.

Partial Report

8587056 CSB-4-4		8587057 CSB-4-4 MS		8587058 CSB-4-4 MSD		8587059 CSB-4-8	
Dry Result	Dry LOQ	Dry Result	Dry LOQ	Dry Result	Dry LOQ	Dry Result	Dry LOQ
8	U	8	100	8	120	8	9
410	U	410	n.a.	n.a.	n.a.	n.a.	910
4	U	4	14	4	17	0.5	4
210	U	210	n.a.	n.a.	n.a.	450	450
4	U	4	15	4	17	4	4
210	U	210	n.a.	n.a.	n.a.	450	450
4	U	4	14	4	15	4	4
210	U	210	n.a.	n.a.	n.a.	450	450
4	U	4	15	4	17	4	4
210	U	210	n.a.	n.a.	n.a.	450	450
8	U	8	120	8	150	9	9
410	U	410	n.a.	n.a.	n.a.	910	910
4	U	4	11	4	13	4	4
210	U	210	n.a.	n.a.	n.a.	450	450
3,000	E	4	2,900	E	4	8,800	4
2,100		210	n.a.	n.a.	n.a.	13,000	450
4	U	4	14	4	17	4	4
210	U	210	n.a.	n.a.	n.a.	450	450
4	U	4	14	4	17	4	4
210	U	210	n.a.	n.a.	n.a.	450	450
1,100	E	4	1,000	E	4	2,100	4
860		210	n.a.	n.a.	n.a.	2,000	450
4	U	4	15	4	17	2	4
210	U	210	n.a.	n.a.	n.a.	450	450
4	U	4	15	4	16	4	4
210	U	210	n.a.	n.a.	n.a.	450	450
4	U	4	14	4	17	4	4
210	U	210	n.a.	n.a.	n.a.	450	450
4	U	4	16	4	18	4	4
210	U	210	n.a.	n.a.	n.a.	450	450
4	U	4	15	4	17	4	1
210	U	210	n.a.	n.a.	n.a.	450	450
4	U	4	29	4	33	4	4
210	U	210	n.a.	n.a.	n.a.	450	450
4	U	4	14	4	17	4	4
210	U	210	n.a.	n.a.	n.a.	450	450
4	U	4	14	4	16	4	4
210	U	210	n.a.	n.a.	n.a.	450	450
4	U	4	14	4	16	4	4
210	U	210	n.a.	n.a.	n.a.	450	450
4	U	4	14	4	16	4	4
210	U	210	n.a.	n.a.	n.a.	450	450
4	U	4	15	4	17	4	1
210	U	210	n.a.	n.a.	n.a.	450	450
8	U	8	84	8	96	9	9
410	U	410	n.a.	n.a.	n.a.	910	910
8	U	8	76	8	82	9	9
410	U	410	n.a.	n.a.	n.a.	910	910
7		4	20	4	22	62	4
210	U	210	n.a.	n.a.	n.a.	450	450
4	U	4	14	4	16	4	4
210	U	210	n.a.	n.a.	n.a.	450	450
4	U	4	14	4	16	4	4
210	U	210	n.a.	n.a.	n.a.	450	450
5		4	21	4	24	11	4
210	U	210	n.a.	n.a.	n.a.	450	450
4	U	4	14	4	17	4	4
210	U	210	n.a.	n.a.	n.a.	450	450

Partial Report

4	U	4	14	4	15	4	4	U	4
210	U	210	n.a.	n.a.	n.a.	n.a.	450	U	450
4	U	4	14	4	16	4	4	U	4
210	U	210	n.a.	n.a.	n.a.	n.a.	450	U	450
1	J	4	16	4	19	4	2	J	4
210	U	210	n.a.	n.a.	n.a.	n.a.	450	U	450
4	U	4	15	4	17	4	4	U	4
210	U	210	n.a.	n.a.	n.a.	n.a.	450	U	450
4	U	4	43	4	51	4	5		4
210	U	210	n.a.	n.a.	n.a.	n.a.	450	U	450
15.3		0.50	n.a.	n.a.	n.a.	n.a.	18.3		0.50
n.a.		n.a.	15.3	0.50	15.3	0.50	n.a.	n.a.	
n.a.		n.a.	n.a.	n.a.	15.2	0.50	n.a.	n.a.	



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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
P.O. Box 241329
Denver CO 80224

Report Date: September 21, 2016

Project: Pfizer Arecibo

Submittal Date: 09/20/2016
Group Number: 1709374
SDG: PFZ08
PO Number: 10381-7-115378
State of Sample Origin: PR

Client Sample Description

CSB-4-12 Grab Soil
Pfizer Arecibo

Lancaster Labs # Collected
8591605 09/19/2016 13:15

METHODOLOGY

The specified methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices.

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CH2M Hill

Attn: Kristina Jones
Attn: Chemistry Mailbox

Partial Report

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CH2M Hill, Inc.
Project: Pfizer Arecibo
SDG: PFZ08

Report Date: 9/21/2016 17:53
Submit Date: 9/20/2016 9:40

Analysis Name	Trial	Units	8591605	
			CSB-4-12	Dry Result
Acetone		ug/kg	18	U 18
Acetone	DL	ug/kg	890	U 890
Carbon Tetrachloride		ug/kg	2,300	E 5
Carbon Tetrachloride	DL	ug/kg	2,000	220
Chloroform		ug/kg	1,800	E 5
Chloroform	DL	ug/kg	1,200	220
Methylene Chloride		ug/kg	40	5
Methylene Chloride	DL	ug/kg	220	U 220
Moisture		%	21.1	1.0

Partial Report

Laboratory Sample Analysis Record

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CAT No.	Analysis Name	Method	Trial ID	Batch	Analysis Date/Time	Analyst	Dilution
8591605 CSB-4-12 Grab Soil							
10237	VOCs 8260B	SW-846 8260B	1	B162642AA	9/20/16 2107	Patrick T Herres	0.72
10237	VOCs 8260B	SW-846 8260B	2-DL	Q162652AA	9/21/16 1135	Jennifer K Howe	35.06
02111	Moisture	SM 2540 G-1997	1	16265912201A	9/21/16 1133	Nancy J Shoop	1

Partial Report

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Comments

8591605 CSB-4-12 Grab Soil

02111 Moisture
"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

Partial Report

Analysis Name	Trial	Units	Method	Cas Number 8591605		
				CSB-4-12	Dry Result	Dry LOQ
Acetone		ug/kg	SW-846 8260B	67-64-1	18 U	18
Acetone	DL	ug/kg	SW-846 8260B	67-64-1	890 U	890
Carbon Tetrachloride		ug/kg	SW-846 8260B	56-23-5	2,300 E	5
Carbon Tetrachloride	DL	ug/kg	SW-846 8260B	56-23-5	2,000	220
Chloroform		ug/kg	SW-846 8260B	67-66-3	1,800 E	5
Chloroform	DL	ug/kg	SW-846 8260B	67-66-3	1,200	220
Methylene Chloride		ug/kg	SW-846 8260B	75-09-2	40	5
Methylene Chloride	DL	ug/kg	SW-846 8260B	75-09-2	220 U	220
Moisture		%	SM 2540 G-1997	n.a.	21.1	1.0



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Environmental

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
P.O. Box 241329
Denver CO 80224

Report Date: September 29, 2016

Project: Pfizer Arecibo

Submittal Date: 09/24/2016
Group Number: 1711623
SDG: PFZ09
PO Number: 10381-7-115378
State of Sample Origin: PR

Client Sample Description	Lancaster Labs #	Collected
CSB-4-16 Grab Soil	8602989	09/20/2016 13:10
Pfizer Arecibo		
CSB-4-17 Grab Soil	8602990	09/20/2016 14:50
Pfizer Arecibo		
CSB-4-20 Grab Soil	8602993	09/21/2016 13:25
Pfizer Arecibo		
CSB-46-20 Grab Soil	8602994	09/21/2016 13:30
Pfizer Arecibo		
CSB-4-21 Grab Soil	8602995	09/21/2016 14:45
Pfizer Arecibo		

METHODOLOGY

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<http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>

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CH2M Hill

Attn: Kristina Jones
Attn: Chemistry Mailbox

Partial Report

Page 2 of 11

CH2M Hill, Inc.
Project: Pfizer Arecibo
SDG: PFZ09

Report Date: 9/29/2016 17:01
Submit Date: 9/24/2016 10:20

Analysis Name	Trial	Units	8602989		8602990		8602993	
			CSB-4-16		CSB-4-17		CSB-4-20	
Acetone		ug/kg	Dry Result	Dry LOQ	Dry Result	Dry LOQ	Dry Result	Dry LOQ
Acetone	DL	ug/kg	140	10	430	U	430	11,000
Benzene		ug/kg	2,200	U	2,200	n.a.	n.a.	8,900
Benzene	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	39	J
Bromodichloromethane		ug/kg	n.a.	n.a.	n.a.	n.a.	2,700	U
Bromodichloromethane	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	270	U
Bromoform		ug/kg	n.a.	n.a.	n.a.	n.a.	270	U
Bromoform	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	2,700	U
Bromomethane		ug/kg	n.a.	n.a.	n.a.	n.a.	270	U
Bromomethane	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	2,700	U
2-Butanone		ug/kg	n.a.	n.a.	n.a.	n.a.	540	U
2-Butanone	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	5,400	U
Carbon Disulfide		ug/kg	n.a.	n.a.	n.a.	n.a.	270	U
Carbon Disulfide	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	2,700	U
Carbon Tetrachloride		ug/kg	12	5	1,400	210	65,000	E
Carbon Tetrachloride	DL	ug/kg	460	J	1,100	n.a.	n.a.	57,000
Chlorobenzene		ug/kg	n.a.	n.a.	n.a.	n.a.	270	U
Chlorobenzene	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	2,700	U
Chloroethane		ug/kg	n.a.	n.a.	n.a.	n.a.	270	U
Chloroethane	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	2,700	U
Chloroform		ug/kg	3,400	E	5	8,600	210	34,000
Chloroform	DL	ug/kg	15,000		1,100	n.a.	n.a.	39,000
Chloromethane		ug/kg	n.a.	n.a.	n.a.	n.a.	270	U
Chloromethane	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	2,700	U
Dibromochloromethane		ug/kg	n.a.	n.a.	n.a.	n.a.	270	U
Dibromochloromethane	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	2,700	U
1,1-Dichloroethane		ug/kg	n.a.	n.a.	n.a.	n.a.	270	U
1,1-Dichloroethane	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	2,700	U
1,2-Dichloroethane		ug/kg	n.a.	n.a.	n.a.	n.a.	270	U
1,2-Dichloroethane	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	2,700	U
1,1-Dichloroethene		ug/kg	n.a.	n.a.	n.a.	n.a.	270	U
1,1-Dichloroethene	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	2,700	U
1,2-Dichloroethene (Total)		ug/kg	n.a.	n.a.	n.a.	n.a.	270	U
1,2-Dichloroethene (Total)	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	270	U
1,2-Dichloropropane		ug/kg	n.a.	n.a.	n.a.	n.a.	270	U
1,2-Dichloropropane	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	2,700	U
cis-1,3-Dichloropropene		ug/kg	n.a.	n.a.	n.a.	n.a.	270	U
cis-1,3-Dichloropropene	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	2,700	U
trans-1,3-Dichloropropene		ug/kg	n.a.	n.a.	n.a.	n.a.	270	U
trans-1,3-Dichloropropene	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	2,700	U
Ethylbenzene		ug/kg	n.a.	n.a.	n.a.	n.a.	270	U
Ethylbenzene	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	2,700	U
2-Hexanone		ug/kg	n.a.	n.a.	n.a.	n.a.	540	U
2-Hexanone	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	5,400	U
4-Methyl-2-pentanone		ug/kg	n.a.	n.a.	n.a.	n.a.	540	U
4-Methyl-2-pentanone	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	540	U

Partial Report

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CH2M Hill, Inc.
Project: Pfizer Arecibo
SDG: PFZ09

Report Date: 9/29/2016 17:01
Submit Date: 9/24/2016 10:20

4-Methyl-2-pentanone	DL	ug/kg	n.a.	n.a.	n.a.	n.a.	5,400	U	5,400
Methylene Chloride		ug/kg	1,900	E	5	340	210	4,900	270
Methylene Chloride	DL	ug/kg	1,700		1,100	n.a.	n.a.	4,700	2,700
Styrene		ug/kg		n.a.	n.a.	n.a.	n.a.	270	U
Styrene	DL	ug/kg		n.a.	n.a.	n.a.	n.a.	2,700	U
1,1,2,2-Tetrachloroethane		ug/kg		n.a.	n.a.	n.a.	n.a.	270	U
1,1,2,2-Tetrachloroethane	DL	ug/kg		n.a.	n.a.	n.a.	n.a.	2,700	U
Tetrachloroethene		ug/kg		n.a.	n.a.	n.a.	n.a.	270	U
Tetrachloroethene	DL	ug/kg		n.a.	n.a.	n.a.	n.a.	2,700	U
Toluene		ug/kg		n.a.	n.a.	n.a.	n.a.	270	U
Toluene	DL	ug/kg		n.a.	n.a.	n.a.	n.a.	2,700	U
1,1,1-Trichloroethane		ug/kg		n.a.	n.a.	n.a.	n.a.	270	U
1,1,1-Trichloroethane	DL	ug/kg		n.a.	n.a.	n.a.	n.a.	2,700	U
1,1,2-Trichloroethane		ug/kg		n.a.	n.a.	n.a.	n.a.	270	U
1,1,2-Trichloroethane	DL	ug/kg		n.a.	n.a.	n.a.	n.a.	2,700	U
Trichloroethene		ug/kg		n.a.	n.a.	n.a.	n.a.	270	U
Trichloroethene	DL	ug/kg		n.a.	n.a.	n.a.	n.a.	2,700	U
Vinyl Chloride		ug/kg		n.a.	n.a.	n.a.	n.a.	270	U
Vinyl Chloride	DL	ug/kg		n.a.	n.a.	n.a.	n.a.	2,700	U
Xylene (Total)		ug/kg		n.a.	n.a.	n.a.	n.a.	270	U
Xylene (Total)	DL	ug/kg		n.a.	n.a.	n.a.	n.a.	2,700	U
Moisture		%	21.4		0.50	21.0	0.50	25.9	0.50

Analysis Name	Trial	Units	8602994		8602995	
			CSB-46-20	CSB-4-21	Dry Result	Dry LOQ
Acetone		ug/kg	7,700	520	550	U
Acetone	DL	ug/kg	11,000	5,200	n.a.	n.a.
Benzene		ug/kg	28	J	260	n.a.
Benzene	DL	ug/kg	2,600	U	2,600	n.a.
Bromodichloromethane		ug/kg	260	U	260	n.a.
Bromodichloromethane	DL	ug/kg	2,600	U	2,600	n.a.
Bromoform		ug/kg	260	U	260	n.a.
Bromoform	DL	ug/kg	2,600	U	2,600	n.a.
Bromomethane		ug/kg	260	U	260	n.a.
Bromomethane	DL	ug/kg	2,600	U	2,600	n.a.
2-Butanone		ug/kg	520	U	520	n.a.
2-Butanone	DL	ug/kg	5,200	U	5,200	n.a.
Carbon Disulfide		ug/kg	260	U	260	n.a.
Carbon Disulfide	DL	ug/kg	2,600	U	2,600	n.a.
Carbon Tetrachloride		ug/kg	46,000	E	260	12,000
Carbon Tetrachloride	DL	ug/kg	65,000		2,600	n.a.
Chlorobenzene		ug/kg	260	U	260	n.a.
Chlorobenzene	DL	ug/kg	2,600	U	2,600	n.a.
Chloroethane		ug/kg	260	U	260	n.a.
Chloroethane	DL	ug/kg	2,600	U	2,600	n.a.
Chloroform		ug/kg	30,000	E	260	5,200
Chloroform	DL	ug/kg	36,000		2,600	n.a.
Chloromethane		ug/kg	260	U	260	n.a.

Partial Report

Page 4 of 11

CH2M Hill, Inc.
Project: Pfizer Arecibo
SDG: PFZ09

Report Date: 9/29/2016 17:01
Submit Date: 9/24/2016 10:20

Chloromethane	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
Dibromochloromethane		ug/kg	260	U	260	n.a.	n.a.
Dibromochloromethane	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
1,1-Dichloroethane		ug/kg	260	U	260	n.a.	n.a.
1,1-Dichloroethane	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
1,2-Dichloroethane		ug/kg	260	U	260	n.a.	n.a.
1,2-Dichloroethane	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
1,1-Dichloroethene		ug/kg	260	U	260	n.a.	n.a.
1,1-Dichloroethene	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
1,2-Dichloroethene (Total)		ug/kg	260	U	260	n.a.	n.a.
1,2-Dichloroethene (Total)	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
1,2-Dichloropropane		ug/kg	260	U	260	n.a.	n.a.
1,2-Dichloropropane	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
cis-1,3-Dichloropropene		ug/kg	260	U	260	n.a.	n.a.
cis-1,3-Dichloropropene	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
trans-1,3-Dichloropropene		ug/kg	260	U	260	n.a.	n.a.
trans-1,3-Dichloropropene	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
Ethylbenzene		ug/kg	260	U	260	n.a.	n.a.
Ethylbenzene	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
2-Hexanone		ug/kg	520	U	520	n.a.	n.a.
2-Hexanone	DL	ug/kg	5,200	U	5,200	n.a.	n.a.
4-Methyl-2-pentanone		ug/kg	520	U	520	n.a.	n.a.
4-Methyl-2-pentanone	DL	ug/kg	5,200	U	5,200	n.a.	n.a.
Methylene Chloride		ug/kg	3,800		260	270	U
Methylene Chloride	DL	ug/kg	5,200		2,600	n.a.	n.a.
Styrene		ug/kg	260	U	260	n.a.	n.a.
Styrene	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
1,1,2,2-Tetrachloroethane		ug/kg	260	U	260	n.a.	n.a.
1,1,2,2-Tetrachloroethane	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
Tetrachloroethene		ug/kg	260	U	260	n.a.	n.a.
Tetrachloroethene	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
Toluene		ug/kg	260	U	260	n.a.	n.a.
Toluene	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
1,1,1-Trichloroethane		ug/kg	260	U	260	n.a.	n.a.
1,1,1-Trichloroethane	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
1,1,2-Trichloroethane		ug/kg	260	U	260	n.a.	n.a.
1,1,2-Trichloroethane	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
Trichloroethene		ug/kg	260	U	260	n.a.	n.a.
Trichloroethene	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
Vinyl Chloride		ug/kg	260	U	260	n.a.	n.a.
Vinyl Chloride	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
Xylene (Total)		ug/kg	260	U	260	n.a.	n.a.
Xylene (Total)	DL	ug/kg	2,600	U	2,600	n.a.	n.a.
Moisture		%			27.3	0.50	28.9

Partial Report

Laboratory Sample Analysis Record

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CAT No.	Analysis Name	Method	Trial ID	Batch	Analysis Date/Time	Analyst	Dilution
8602989 CSB-4-16 Grab Soil							
10237	VOCs 8260B	SW-846 8260B	1	B162721AA	9/28/16 2126	Patrick T Herres	0.75
10237	VOCs 8260B	SW-846 8260B	2-DL	Q162722AA	9/28/16 2257	Stephen C Nolte	173.13
00111	Moisture	SM 2540 G-1997		1 16271820002A	9/27/16 1021	William C Schwebel	1
8602990 CSB-4-17 Grab Soil							
10237	VOCs 8260B	SW-846 8260B		1 Q162712AA	9/27/16 1142	Jennifer K Howe	33.78
00111	Moisture	SM 2540 G-1997		1 16271820002A	9/27/16 1021	William C Schwebel	1
8602993 CSB-4-20 Grab Soil							
10237	VOCs 8260B	SW-846 8260B	1	Q162712AA	9/27/16 1205	Jennifer K Howe	40.26
10237	VOCs 8260B	SW-846 8260B	2-DL	Q162712AA	9/27/16 1827	Jennifer K Howe	402.58
00111	Moisture	SM 2540 G-1997		1 16271820002A	9/27/16 1021	William C Schwebel	1
8602994 CSB-46-20 Grab Soil							
10237	VOCs 8260B	SW-846 8260B	1	Q162712AA	9/27/16 1228	Jennifer K Howe	37.99
10237	VOCs 8260B	SW-846 8260B	2-DL	Q162712AA	9/27/16 1850	Jennifer K Howe	379.94
00111	Moisture	SM 2540 G-1997		1 16271820002A	9/27/16 1021	William C Schwebel	1
8602995 CSB-4-21 Grab Soil							
10237	VOCs 8260B	SW-846 8260B	1	Q162712AA	9/27/16 1250	Jennifer K Howe	38.76
00111	Moisture	SM 2540 G-1997		1 16271820002A	9/27/16 1021	William C Schwebel	1

Partial Report

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Comments

8602989 CSB-4-16 Grab Soil

- 00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

8602990 CSB-4-17 Grab Soil

- 00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.
- 10237 VOCs- Solid by 8260B
Reporting limits were raised due to interference from the sample matrix.

8602993 CSB-4-20 Grab Soil

- 00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.
- 10237 VOCs- Solid by 8260B
Sample was reanalyzed at a higher dilution factor to obtain results within the calibration range of the system for target analytes.

8602994 CSB-46-20 Grab Soil

- 00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.
- 10237 VOCs- Solid by 8260B
Sample was reanalyzed at a higher dilution factor to obtain results within the calibration range of the system for target analytes.

8602995 CSB-4-21 Grab Soil

- 00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.
- 10237 VOCs- Solid by 8260B

Partial Report

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Comments

Reporting limits were raised due to interference from the sample matrix.

Partial Report

Analysis Name	Trial	Units	Method	Cas Number	8602989	Dry Result	Dry LOQ
				CSB-4-16			
Acetone		ug/kg	SW-846 8260B	67-64-1	140	10	
Acetone	DL	ug/kg	SW-846 8260B	67-64-1	2,200	U	2,200
Benzene		ug/kg	SW-846 8260B	71-43-2	n.a.	n.a.	
Benzene	DL	ug/kg	SW-846 8260B	71-43-2	n.a.	n.a.	
Bromodichloromethane		ug/kg	SW-846 8260B	75-27-4	n.a.	n.a.	
Bromodichloromethane	DL	ug/kg	SW-846 8260B	75-27-4	n.a.	n.a.	
Bromoform		ug/kg	SW-846 8260B	75-25-2	n.a.	n.a.	
Bromoform	DL	ug/kg	SW-846 8260B	75-25-2	n.a.	n.a.	
Bromomethane		ug/kg	SW-846 8260B	74-83-9	n.a.	n.a.	
Bromomethane	DL	ug/kg	SW-846 8260B	74-83-9	n.a.	n.a.	
2-Butanone		ug/kg	SW-846 8260B	78-93-3	n.a.	n.a.	
2-Butanone	DL	ug/kg	SW-846 8260B	78-93-3	n.a.	n.a.	
Carbon Disulfide		ug/kg	SW-846 8260B	75-15-0	n.a.	n.a.	
Carbon Disulfide	DL	ug/kg	SW-846 8260B	75-15-0	n.a.	n.a.	
Carbon Tetrachloride		ug/kg	SW-846 8260B	56-23-5	12	5	
Carbon Tetrachloride	DL	ug/kg	SW-846 8260B	56-23-5	460	J	1,100
Chlorobenzene		ug/kg	SW-846 8260B	108-90-7	n.a.	n.a.	
Chlorobenzene	DL	ug/kg	SW-846 8260B	108-90-7	n.a.	n.a.	
Chloroethane		ug/kg	SW-846 8260B	75-00-3	n.a.	n.a.	
Chloroethane	DL	ug/kg	SW-846 8260B	75-00-3	n.a.	n.a.	
Chloroform		ug/kg	SW-846 8260B	67-66-3	3,400	E	5
Chloroform	DL	ug/kg	SW-846 8260B	67-66-3	15,000		1,100
Chloromethane		ug/kg	SW-846 8260B	74-87-3	n.a.	n.a.	
Chloromethane	DL	ug/kg	SW-846 8260B	74-87-3	n.a.	n.a.	
Dibromochloromethane		ug/kg	SW-846 8260B	124-48-1	n.a.	n.a.	
Dibromochloromethane	DL	ug/kg	SW-846 8260B	124-48-1	n.a.	n.a.	
1,1-Dichloroethane		ug/kg	SW-846 8260B	75-34-3	n.a.	n.a.	
1,1-Dichloroethane	DL	ug/kg	SW-846 8260B	75-34-3	n.a.	n.a.	
1,2-Dichloroethane		ug/kg	SW-846 8260B	107-06-2	n.a.	n.a.	
1,2-Dichloroethane	DL	ug/kg	SW-846 8260B	107-06-2	n.a.	n.a.	
1,1-Dichloroethene		ug/kg	SW-846 8260B	75-35-4	n.a.	n.a.	
1,1-Dichloroethene	DL	ug/kg	SW-846 8260B	75-35-4	n.a.	n.a.	
1,2-Dichloroethene (Total)		ug/kg	SW-846 8260B	540-59-0	n.a.	n.a.	
1,2-Dichloroethene (Total)	DL	ug/kg	SW-846 8260B	540-59-0	n.a.	n.a.	
1,2-Dichloropropane		ug/kg	SW-846 8260B	78-87-5	n.a.	n.a.	
1,2-Dichloropropane	DL	ug/kg	SW-846 8260B	78-87-5	n.a.	n.a.	
cis-1,3-Dichloropropene		ug/kg	SW-846 8260B	10061-01-5	n.a.	n.a.	
cis-1,3-Dichloropropene	DL	ug/kg	SW-846 8260B	10061-01-5	n.a.	n.a.	
trans-1,3-Dichloropropene		ug/kg	SW-846 8260B	10061-02-6	n.a.	n.a.	
trans-1,3-Dichloropropene	DL	ug/kg	SW-846 8260B	10061-02-6	n.a.	n.a.	
Ethylbenzene		ug/kg	SW-846 8260B	100-41-4	n.a.	n.a.	
Ethylbenzene	DL	ug/kg	SW-846 8260B	100-41-4	n.a.	n.a.	
2-Hexanone		ug/kg	SW-846 8260B	591-78-6	n.a.	n.a.	
2-Hexanone	DL	ug/kg	SW-846 8260B	591-78-6	n.a.	n.a.	
4-Methyl-2-pentanone		ug/kg	SW-846 8260B	108-10-1	n.a.	n.a.	
4-Methyl-2-pentanone	DL	ug/kg	SW-846 8260B	108-10-1	n.a.	n.a.	
Methylene Chloride		ug/kg	SW-846 8260B	75-09-2	1,900	E	5
Methylene Chloride	DL	ug/kg	SW-846 8260B	75-09-2	1,700		1,100
Styrene		ug/kg	SW-846 8260B	100-42-5	n.a.	n.a.	
Styrene	DL	ug/kg	SW-846 8260B	100-42-5	n.a.	n.a.	
1,1,2,2-Tetrachloroethane		ug/kg	SW-846 8260B	79-34-5	n.a.	n.a.	
1,1,2,2-Tetrachloroethane	DL	ug/kg	SW-846 8260B	79-34-5	n.a.	n.a.	
Tetrachloroethene		ug/kg	SW-846 8260B	127-18-4	n.a.	n.a.	
Tetrachloroethene	DL	ug/kg	SW-846 8260B	127-18-4	n.a.	n.a.	
Toluene		ug/kg	SW-846 8260B	108-88-3	n.a.	n.a.	
Toluene	DL	ug/kg	SW-846 8260B	108-88-3	n.a.	n.a.	
1,1,1-Trichloroethane		ug/kg	SW-846 8260B	71-55-6	n.a.	n.a.	
1,1,1-Trichloroethane	DL	ug/kg	SW-846 8260B	71-55-6	n.a.	n.a.	
1,1,2-Trichloroethane		ug/kg	SW-846 8260B	79-00-5	n.a.	n.a.	
1,1,2-Trichloroethane	DL	ug/kg	SW-846 8260B	79-00-5	n.a.	n.a.	

Partial Report

Trichloroethene		ug/kg	SW-846 8260B	79-01-6	n.a.	n.a.
Trichloroethene	DL	ug/kg	SW-846 8260B	79-01-6	n.a.	n.a.
Vinyl Chloride		ug/kg	SW-846 8260B	75-01-4	n.a.	n.a.
Vinyl Chloride	DL	ug/kg	SW-846 8260B	75-01-4	n.a.	n.a.
Xylene (Total)		ug/kg	SW-846 8260B	1330-20-7	n.a.	n.a.
Xylene (Total)	DL	ug/kg	SW-846 8260B	1330-20-7	n.a.	n.a.
Moisture		%	SM 2540 G-1997	n.a.	21.4	0.50

Partial Report

Partial Report

n.a.	n.a.	270	U	270	260	U	260	n.a.	n.a.
n.a.	n.a.	2,700	U	2,700	2,600	U	2,600	n.a.	n.a.
n.a.	n.a.	270	U	270	260	U	260	n.a.	n.a.
n.a.	n.a.	2,700	U	2,700	2,600	U	2,600	n.a.	n.a.
n.a.	n.a.	270	U	270	260	U	260	n.a.	n.a.
n.a.	n.a.	2,700	U	2,700	2,600	U	2,600	n.a.	n.a.
21.0	0.50	25.9		0.50	27.3		0.50	28.9	0.50



Lancaster Laboratories
Environmental

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
P.O. Box 241329
Denver CO 80224

Report Date: October 03, 2016

Project: Pfizer Arecibo

Submittal Date: 09/28/2016
Group Number: 1713234
SDG: PFZ10
PO Number: 10381-7-115378
State of Sample Origin: PR

Client Sample Description

CSB-3-7 Grab Soil
Pfizer Arecibo

Lancaster Labs # **Collected**
8609213 09/27/2016 08:40

METHODOLOGY

The specified methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices.

Our current scopes of accreditation can be viewed at

<http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>

Electronic Copy To
Electronic Copy To

CH2M Hill, Inc.
CH2M Hill

Attn: Kristina Jones
Attn: Chemistry Mailbox

Partial Report

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CH2M Hill, Inc.
Project: Pfizer Arecibo
SDG: PFZ10

Report Date: 10/3/2016 15:14
Submit Date: 9/28/2016 13:50

Analysis Name	Trial	Units	8609213		
			CSB-3-7		Dry LOQ
Acetone		ug/kg	410	E	7
Acetone	DL	ug/kg	360	U	360
Carbon Tetrachloride		ug/kg	11		4
Carbon Tetrachloride	DL	ug/kg	180	U	180
Chloroform		ug/kg	5		4
Chloroform	DL	ug/kg	180	U	180
Methylene Chloride		ug/kg	4	U	4
Methylene Chloride	DL	ug/kg	180	U	180
Moisture		%	10.9		0.50

Partial Report

Laboratory Sample Analysis Record

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CAT No.	Analysis Name	Method	Trial ID	Batch	Analysis Date/Time	Analyst	Dilution
8609213 CSB-3-7 Grab Soil							
10237	VOCs 8260B	SW-846 8260B	1	B162743AA	9/30/16 1926	Roy R Mellott Jr	0.64
10237	VOCs 8260B	SW-846 8260B	2-DL	Q162743AA	9/30/16 2146	Stephen C Nolte	32.43
00111	Moisture	SM 2540 G-1997		3 16274820002B	9/30/16 1507	Larry E Bevins	1

Partial Report

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Comments

8609213 CSB-3-7 Grab Soil

- 00111 Moisture
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.
- 10237 VOCs- Solid by 8260B
The concentration reported for Acetone is estimated since it exceeds the calibration range of the instrument when determined by the low level method, but is less than the quantitation limit when determined by the high level method. The result reported is from both analyses.

Partial Report

Analysis Name	Trial	Units	Method	Cas Number	8609213	CSB-3-7	Dry Result	Dry LOQ
Acetone		ug/kg	SW-846 8260B	67-64-1	410	E	7	
Acetone	DL	ug/kg	SW-846 8260B	67-64-1	360	U	360	
Carbon Tetrachloride		ug/kg	SW-846 8260B	56-23-5		11		4
Carbon Tetrachloride	DL	ug/kg	SW-846 8260B	56-23-5	180	U	180	
Chloroform		ug/kg	SW-846 8260B	67-66-3		5		4
Chloroform	DL	ug/kg	SW-846 8260B	67-66-3	180	U	180	
Methylene Chloride		ug/kg	SW-846 8260B	75-09-2	4	U		4
Methylene Chloride	DL	ug/kg	SW-846 8260B	75-09-2	180	U	180	
Moisture		%	SM 2540 G-1997	n.a.			10.9	0.50

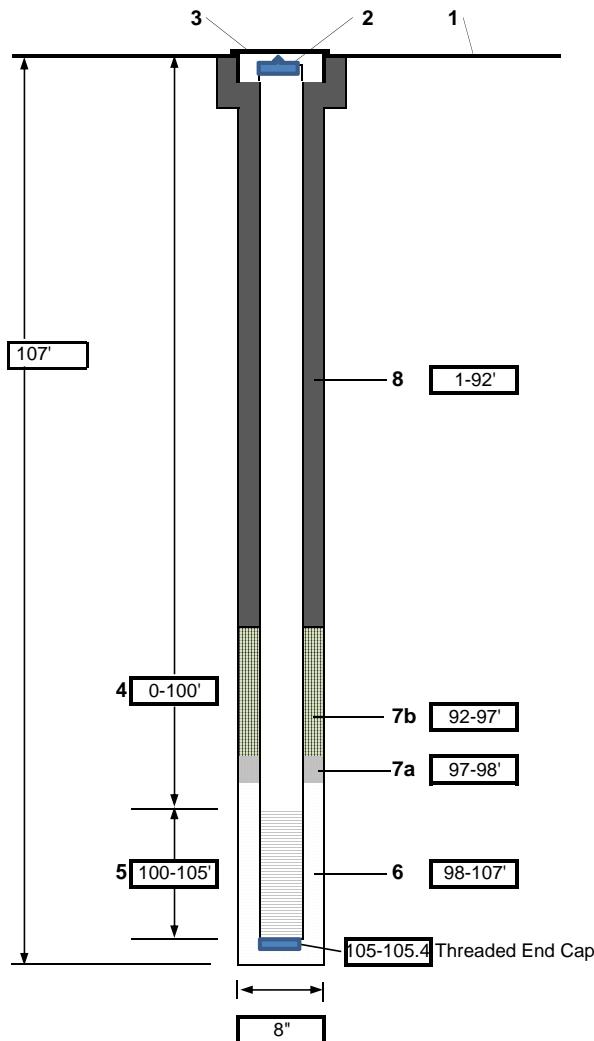
Attachment 3

Well Completion Diagrams

PROJECT NUMBER 663222.02.05	WELL NUMBER SVE-2	SHEET 1 OF 1
WELL COMPLETION DIAGRAM		

PROJECT : Pfizer Arecibo LOCATION : Arecibo, Puerto Rico COORDINATES: not yet collected
 DRILLING CONTRACTOR : ERTEC/Complete Well and Pump Service (CWPS); Driller: Alex de Valle
 DRILLING METHOD AND EQUIPMENT USED : T-65-WII Ridge Drill Rig, Air Rotary, 7 7/8" drill bit, HQ drill rod
 WATER LEVELS : Not Encountered START : 10/06/16 0850 END : 10/06/16 1600 Logger: D. Whitaker

for second water bearing zone

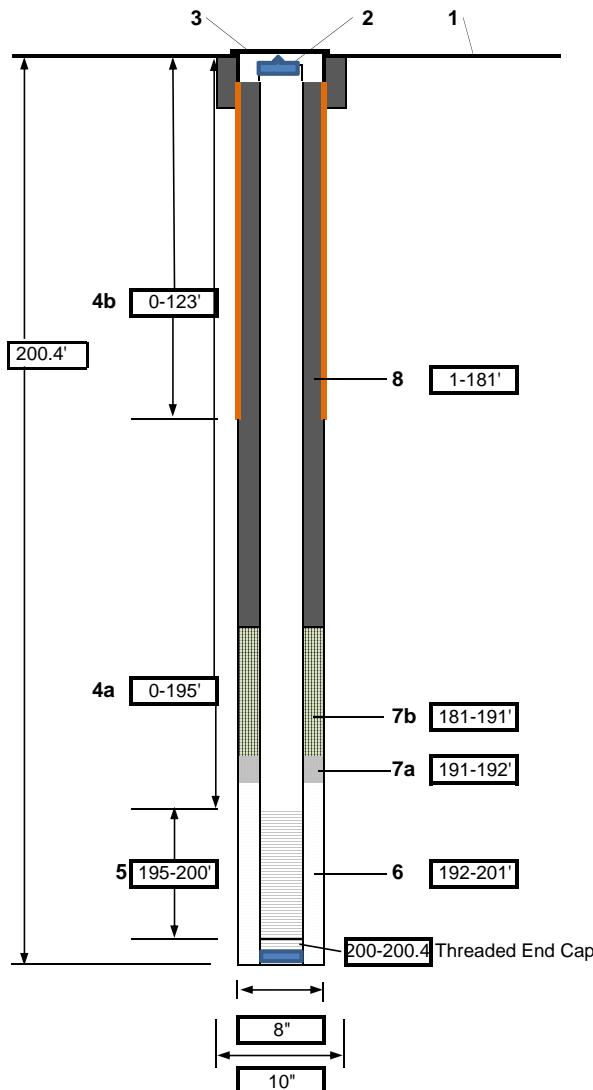


- 1- Ground elevation at well TBD
- 2- Top of casing elevation TBD
- 3- Wellhead protection cover type 12" stainless steel well vault
Concrete pad dimensions 2' x 2' x 6"
- 4a- Dia./type of well casing Sch 40 PVC- 4" dia.
4b- Dia./type of outer well casing none
- 5- Type/slot size of screen Sch 40 PVC - 4" dia. 0.040" slot
- 6- Type filter pack Gravel Pack #3
a) Quantity used 4 - 50 lb bags
- 7- Seal 20/30 fine silica sand
7a- a) Type 25 lbs.
b) Quantity used 1/4" non-coated PEL-Plug bentonite pellets
7b- a) Type 2.5- 5 gallon buckets used
b) Quantity used
- 8- Grout Ponce cement with 5% bentonite powder and water
a) Grout mix used tremmie under pressure from bottom up
b) Method of placement
- Comments Completed Pad Install: 10/25/16

PROJECT NUMBER 663222.02.05	WELL NUMBER SVE-3	SHEET 1 OF 1
WELL COMPLETION DIAGRAM		

PROJECT : Pfizer Arecibo LOCATION : Arecibo, Puerto Rico COORDINATES: not yet collected
 DRILLING CONTRACTOR : ERTEC/Complete Well and Pump Service (CWPS); Driller: Alex de Valle
 DRILLING METHOD AND EQUIPMENT USED : T-65-WII Ridge Drill Rig, Air Rotary, 7 7/8" drill bit, HQ drill rod
 WATER LEVELS : Not Encountered START : 10/06/16 0850 END : 10/06/16 1600 Logger: D. Whitaker

for second water bearing zone



- 1- Ground elevation at well TBD
 2- Top of casing elevation TBD
 3- Wellhead protection cover type 12" stainless steel well vault
 Concrete pad dimensions 2' x 2' x 6"
 4a- Dia./type of well casing Sch 40 PVC- 4" dia.
 4b- Dia./type of outer well casing 8" carbon steel casing
 5- Type/slot size of screen Sch 40 PVC - 4" dia. 0.040" slot
 6- Type filter pack Gravel Pack #3
 a) Quantity used 4 - 50 lb bags
 7- Seal 20/30 fine silica sand
 7a- a) Type 1- 50 lb. bag
 b) Quantity used 1/4" non-coated PEL-Plug bentonite pellets
 7b- a) Type 2.5- 5 gallon buckets used
 b) Quantity used tremmie under pressure from bottom up
 8- Grout Ponce cement with 5% bentonite powder and water
 a) Grout mix used tremmie under pressure from bottom up
 b) Method of placement tremmie under pressure from bottom up

Comments Completed Pad Install: 10/25/16

PROJECT NUMBER 663222.02.05	WELL NUMBER VMW-4 (CSB-3)	SHEET 1	OF 1
--------------------------------	------------------------------	---------	------

WELL COMPLETION DIAGRAM

PROJECT : Pfizer Arecibo

LOCATION : Arecibo, Puerto Rico

COORDINATES: not yet collected

DRILLING CONTRACTOR : ERTEC; Driller: Aurio Claudio

DRILLING METHOD AND EQUIPMENT USED : CME-55 with 4.25" ID/8.5" OD hollow stem augers

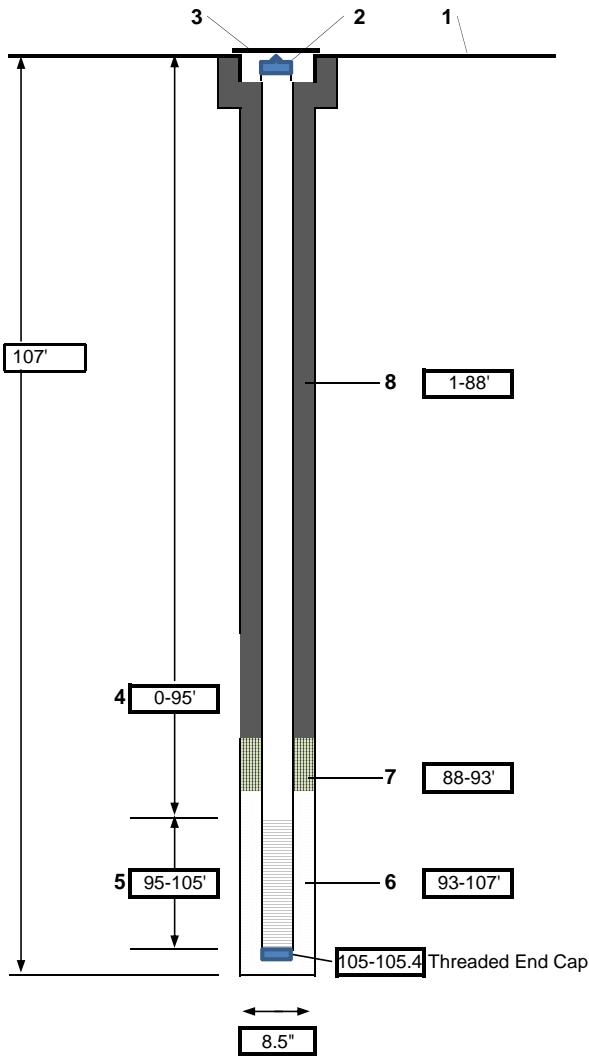
WATER LEVELS : Not Encountered

START : 10/18/16 0945

END : 10/21/16 1200

Logger: D. Whitaker

for second water bearing zone



- | | |
|------------------------------------|--|
| 1- Ground elevation at well | TBD |
| 2- Top of casing elevation | TBD |
| 3- Wellhead protection cover type | 12" stainless steel well vault |
| Concrete pad dimensions | 2' x 2' x 6" |
| 4a- Dia./type of well casing | Sch 40 PVC- 2" dia. |
| 4b- Dia./type of outer well casing | none |
| 5- Type/slot size of screen | Sch 40 PVC - 2" dia. 0.020" slot |
| 6- Type filter pack | Gravel Pack #3 |
| a) Quantity used | 4 - 50 lb bags |
| 7- Seal | 1/4" non-coated PEL-Plug bentonite pellets |
| a) Type | 2.5- 5 gallon buckets used |
| b) Quantity used | |
| 8- Grout | Ponce cement with 5% bentonite powder |
| a) Grout mix used | and water |
| b) Method of placement | tremmie under pressure from bottom up |
- Comments Completed Pad Install: 10/25/16

Attachment 4

Photo Log

Photo 1. Air hammer rig at SVE-2 installation.



Photo 2. SVE-2 (left) and SVE-3 (right) after installation.



Photo 3. IDW drum staging area.



Photo 4. SVE-2 (right) and SVE-3 (left) after hook-up to the existing SVE system.



Photo 5. VMW-4

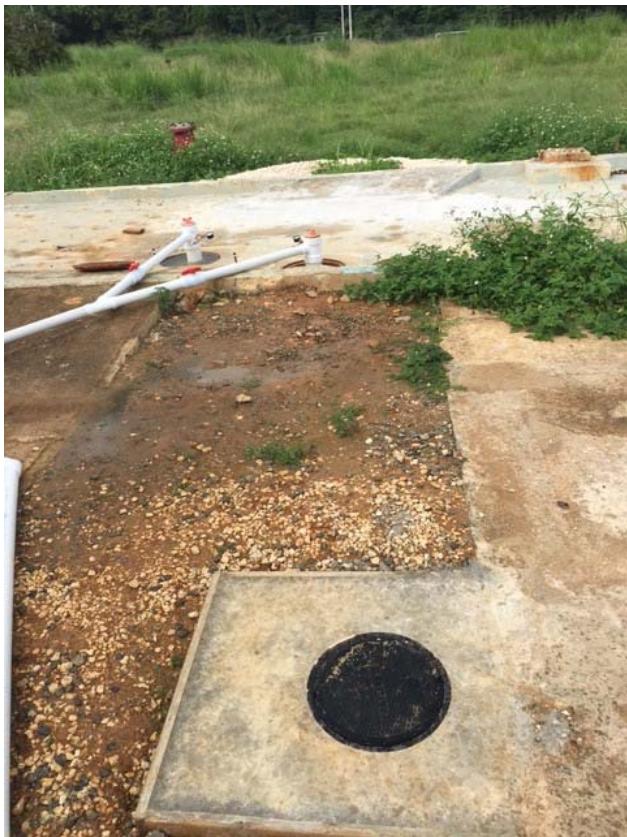


Photo 6. Soil vapor monitoring wells and vapor monitoring well system.



Attachment 5

IDW Chain-of-custody

Environmental Services Analysis Request/Chain of Custody



Lancaster
Laboratories

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Client: CH2M HILL		AQUEOUS MEDIA				Matrix		Analyses Requested								For Lab Use Only									
Project Name/#: Pfizer Arecibo		Site ID #:						Preservation Codes																	
Project Manager: Emil Filc		P.O. #:				<input type="checkbox"/> Sediment	<input type="checkbox"/> Potable	<input type="checkbox"/> Ground	<input type="checkbox"/> Surface	<input type="checkbox"/> NPDES	<input type="checkbox"/> Other: DI Water	Total # of Containers	H	I	I	I	O	I	I	I	SF #: _____				
Sampler: Domingo Gonzales		PWSID #:											Aqueous: 8260B VOCs	TCLP VOCs	TCLP SVOCs	TPH	TOX	PCBs	TCLP Total Metals	Moisture	SCR #: _____				
Phone #: (787) 685-9513		Quote #:														Preservation Codes									
State where sample(s) were collected: Puerto Rico														H = HCl	T = Thiosulfate										
Sample Identification		Collection			<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Water	<input type="checkbox"/> Other: DI Water	Total # of Containers	<input type="checkbox"/> Aqueous: 8260B VOCs	<input type="checkbox"/> TCLP VOCs	<input type="checkbox"/> TCLP SVOCs	<input type="checkbox"/> TPH	<input type="checkbox"/> TOX	<input type="checkbox"/> PCBs	<input type="checkbox"/> TCLP Total Metals	<input type="checkbox"/> Moisture	N = HNO ₃		B = NaOH						
		Date	Time	Grab					Composite												S = H ₂ SO ₄		P = H ₃ PO ₄		
PZA-IDW-TB01	12/05/16	1010	X		X	X	2	X								O = Other		Remarks							
PZA-IDW-SO01	12/05/16	1100		X	X		5		X	X	X	X	X	X		Trip Blank		CSB-1							
PZA-IDW-SO02	12/05/16	1120		X	X		5		X	X	X	X	X	X		CSB-2		CSB-3, CSB-4/VMW-4, SVE-2, SVE-3							
PZA-IDW-SO03	12/05/16	1140		X	X		5		X	X	X	X	X	X											
Turnaround Time Requested (TAT) (please check): Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/>														Relinquished by:		Date		Time		Received by:		Date		Time	
(Rush TAT is subject to Lancaster Laboratories approval and surcharges.)																									
Date results are needed:														Relinquished by:		Date		Time		Received by:		Date		Time	
Rush results requested by (please check): E-Mail <input type="checkbox"/> Phone <input type="checkbox"/>														Relinquished by:		Date		Time		Received by:		Date		Time	
E-mail Address: mark.stinnett@ch2m.com														Relinquished by:		Date		Time		Received by:		Date		Time	
Phone: (352) 384-7180														Relinquished by:		Date		Time		Received by:		Date		Time	
Data Package Options (please check if required)														Relinquished by:		Date		Time		Received by:		Date		Time	
Type I (Validation/non-CLP) <input type="checkbox"/> MA MCP <input type="checkbox"/>														Relinquished by:		Date		Time		Received by:		Date		Time	
Type III <input checked="" type="checkbox"/> CT RCP <input type="checkbox"/>														Relinquished by:		Date		Time		Received by:		Date		Time	
Type IV (CLP SOW) <input type="checkbox"/> TX TRRP-13 <input type="checkbox"/>														Relinquished by:		Date		Time		Received by:		Date		Time	
Type VI (Raw Data Only) <input type="checkbox"/> As Contracted														Relinquished by Commercial Carrier:											
EDD Required? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, format: _____														UPS _____ FedEx _____ X						Temperature upon receipt _____ °C					